Further Analysis and Report on Renewable Energy Requirements

Prepared by the Public Service Board in Consultation with the Commissioner of Public Service Pursuant to Section 7 of Public Act 170

January 15, 2013

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I. Introduction and Procedural History

Section 7 of Public Act 170[1] requires that the Vermont Public Service Board ("Board") submit to the Vermont Legislature by January 15, 2013, in consultation with the Commissioner of Public Service ("Department"), a further analysis and report on certain issues related to renewable energy.[2] The following report is submitted in fulfillment of that mandate and addresses the statutory considerations of Act 170.

The Board is a quasi-judicial agency that is likely to be called upon in the future to adjudicate such legal and policy issues that may arise from the implementation of any statutes enacted to promote the Legislature's renewable energy policies. Because of this role, the Board has refrained from advocating for any particular renewable energy policy options. Accordingly, this report does not contain any specific Board recommendations for legislative action, such as the enactment of a Renewable Portfolio Standard ("RPS"). Instead, the Board has endeavored to meet the report mandate of Act 170 by identifying and describing certain renewable energy policy options that may prove useful to the Legislature in formulating energy policy for Vermont.

In conducting the proceedings underlying this report, the Board has attempted to be as inclusive as possible in seeking stakeholder input. Throughout this proceeding Board staff have consulted with staff of the Department. In addition to consultation with Department staff, both former Commissioner Elizabeth Miller and current Commissioner Christopher Recchia have reviewed earlier drafts and provided comments. Board staff prepared a draft version of this report, solicited written stakeholder input on the draft report, and convened a workshop. While not all stakeholder input on every point was ultimately adopted in this report, the Board has included an appendix for the Legislature's consideration which contains all of the comments it

1. Public Act 170, §7 (2012 Vt., Adj. Sess.)

2. This further analysis relies upon, and is supplemental to, the study on renewable electricity requirements that the Board prepared in 2011, pursuant to Section 13a of Public Act 159 (2010 Vt., Adj. Sess.) (hereinafter the "2011 Report"). Accordingly, the principles, discussions, and recommendations contained in the 2011 Report have not been repeated in full in this report. The 2011 Report can be found at: http://psb.vermont.gov/sites/psb/files/publications/Reports%20to%20legislature/RPSreport2011/Final/Study%20on%20Renewable%20Electricity%20Requirements%20-%20Final.pdf

received from the stakeholders on the draft version of this report that was circulated for stakeholder review on November 27, 2012.[3]

3. See Appendix A, where stakeholder comments have been included in full.

II. Executive Summary of Report Conclusions

If the Legislature chooses to consider adopting renewable policy requirements for Vermont, it would be advisable to specifically identify and prioritize the goals that the Legislature wishes to accomplish through such renewable policy. Once such an order of priority has been established, the Legislature's choice of renewable policy requirements could be informed by the analysis in Section IV of this report and on the *Analysis of Renewable Policy Options for Vermont* report that was incorporated into the 2011 Report.

If the Legislature chooses to adopt new renewable energy policy the Legislature should aim to be consistent with the following fundamental principles, which reflect the goals of 30 V.S.A. § 8001:

1. Encourage the development of the most cost-effective new renewable resources, regardless of whether they are located in Vermont or elsewhere; and

2. Encourage the development of in-state renewable distributed generation resources to the extent permissible under federal law in order to bolster Vermont's transmission and distribution systems.

In designing any renewable policy, the policy drafters should keep in mind the guidelines of the Federal Trade Commission ("FTC") regarding the use of environmental claims generally, and specifically those regarding renewable energy. This will help ensure that electric utility customers will have certainty as to the nature of the electricity that they purchase, and will protect Vermont's electric utilities from exposure related to claims about the nature of their supply portfolios.

Any renewable energy policy for Vermont that seeks to directly facilitate the environmental goals of 30 V.S.A. § 8001, such as protecting and promoting air and water quality in the state and region and contributing to reductions in global climate change, should include a requirement that renewable energy certificates ("RECs") associated with utility-owned (or purchased) renewable energy be retired. Such a requirement also would be more likely to avoid double counting of environmental benefits.

Finally, the Board notes that for the purposes of this report, the term "renewable energy" means energy produced using a renewable technology and has all of the RECs attached. Further, for the purposes of this report, the term "generation facility" means an electric energy plant that utilizes a renewable technology, regardless of whether or not RECs are attached to the electricity produced by the plant.

III. Statutory Considerations of Act 170

III.A. Act 170, Section 7(a)(1)

The first part of Act 170, Section 7(a)(1), requires the Board to report on the following area of inquiry:

> *Further analysis of whether and how to establish a renewable portfolio standard in Vermont, including consideration of allocating such a standard among different categories of renewable energy technologies and of creating, for renewable energy plants, a tiered system of tradeable renewable energy credits as defined under 30 V.S.A. § 8002 or other incentives that reward increasing levels of efficiency.*

Analysis of Whether and How to Establish a Renewable Portfolio Standard in Vermont

The 2011 Report stated that "In order for an RPS to be successful, the goals (environmental, economic, technological or otherwise) of the RPS must be stated explicitly from the outset. Policymakers should then refer back to these goals for each policy decision to ensure that it is aimed at a specific goal."[4] While the Legislature has already adopted renewable energy goals, as codified in 30 V.S.A. § 8001, at this time there is no decisional principle or guidance in the statute for determining the priority to be given to these goals in the event that they are found to be in conflict with each other. Accordingly, if the Legislature is inclined to consider implementing new renewable energy policy options for Vermont, then the Legislature may wish to explicitly establish an order of priority for pursuing the policy goals set forth in Section 8001.

The following analysis may assist the Legislature in identifying the most effective renewable energy policy options for pursuing the goals set forth in Section 8001, once they have been prioritized.

> 8001(a)(1) *Balancing the benefits, lifetime costs, and rates of the state's overall energy portfolio to ensure that to the greatest extent possible the economic benefits of renewable energy in the state flow to the Vermont economy in general, and to the rate paying citizens of the state in particular.*

4. 2011 Report at 20.

If this goal is interpreted as seeking to obtain the economic development benefits associated with the in-state construction of generation facilities, while balancing and mitigating rate impacts, then the most suitable policy options for pursuing this goal may be Vermont's existing standard-offer and net-metering programs. These programs each require that projects be constructed in-state. The standard-offer and net-metering programs therefore lead to economic development through construction and permitting, and mitigate above-market costs through the sale of any RECs. Because neither an RPS nor the current SPEED program would require in-state construction and thus may not capture the associated economic development, these programs may not be optimal for advancing this goal.

> 8001(a)(2) *Supporting development of renewable energy that uses natural resources efficiently and related planned energy industries in Vermont, and the jobs and economic benefits associated with such development, while retaining and supporting existing renewable energy infrastructure.*

As noted above, the current standard-offer and net-metering programs appear to be suitable policy options for supporting the development of generation facilities and related planned energy industries in Vermont. The Board notes that Section 8005a(n) requires wood biomass resources to have a design system efficiency of at least 50%. This provision appears to be directed at supporting projects that use natural resources efficiently.

With respect to the goal of retaining and supporting existing renewable energy infrastructure, the Legislature has already taken steps through the authorization of standard-offer contracts to support certain existing renewable energy projects, such as agricultural methane, hydroelectric, and biomass plants.

> 8001(a)(3) *Providing an incentive for the state's retail electricity providers to enter into affordable, long-term, stably priced renewable energy contracts that mitigate market price fluctuation for Vermonters.*

It would appear that, at this time, some developers who enter into long-term stably priced contracts with retail electricity providers are seeking to bundle the energy, capacity, and RECs associated with the output of a generation facility. To the extent that this bundling is now

common practice, the current SPEED program encourages the state's retail electricity providers to enter into such contracts. However, if the intent of Section 8001(a)(3) is to promote the inclusion of renewable energy in the supply portfolios of providers, then it is important to recognize that the current SPEED program does not promote the inclusion of renewable energy in providers' supply portfolios, because the current SPEED program allows for RECs to be resold. Thus, to promote the inclusion of renewable energy in the energy portfolios of Vermont retail electricity providers, the adoption of an RPS in which RECs are retired would be preferable to the present practice of permitting RECs to be resold as occurs under the current SPEED program.

If the Legislature chooses to mandate the retirement of RECs as part of meeting an RPS requirement, then it may be advisable to require any generation facility seeking to become eligible for a Vermont RPS to register with ISO New England's NEPOOL GIS[5] system. This would ensure that renewable attributes are counted only once — to facilitate their retirement — while fostering the best opportunity to meet RPS goals at reasonable cost through a fungible commodity. Additionally, the policy drafters should bear in mind that, for a REC to be truly fungible, Vermont's eligibility requirements for renewable generation resources must be designed to be as consistent as possible with those of other New England states.

8001(a)(4) *Developing viable markets for renewable energy and energy efficiency projects.*

When considering the FTC guidelines described below, and the renewable energy practices common in every other state that has a renewable energy requirement, it would appear that the current SPEED program is not optimally conducive to developing viable markets for renewable energy because the program allows for the sale of RECs, as opposed to requiring their retirement.

If Section 8001(a)(4) is understood to be directed at developing viable markets for new generation facilities, then it would appear that the current net metering, standard offer, and

5. NEPOOL GIS stands for New England Power Pool Generation Information System

SPEED programs each advance this goal. That said, an RPS in which RECs are retired, in conjunction with the net metering and standard offer programs, could also advance the goal of Section 8001(a)(4) while by-passing the policy tensions associated with the sale of RECs.

With respect to developing viable markets for energy efficiency projects, it bears noting that Vermont currently has robust energy efficiency programs in place. In addressing the question of including electric energy efficiency resources in an RPS or revised SPEED program, the 2011 Report observed:

> Electric energy efficiency inherently affects any electricity resource requirement because efficiency reduces total load and therefore the amount of electricity that must be produced or purchased. While some states include the purchase of electric energy efficiency resources in their RPS requirements, it is important to bear in mind the purpose of a state's RPS when considering whether to include electric energy efficiency as a resource. If a state's goal is to achieve reductions in greenhouse gas emissions, then the purchase of electric energy efficiency is currently the most cost-effective way to achieve this goal. If, however, a state has other goals, including achieving a diversity of resources or promoting the development of renewable energy projects, markets and industries, then the purchase of electric energy efficiency resources is not likely a viable way to achieve those goals.[6]

There does not appear to be any need to specifically include energy efficiency programs in an RPS or SPEED program, as other, more targeted tools already exist under Vermont law for developing energy efficiency projects, such as efficiency programs funding through the Energy Efficiency Charge authorized pursuant to 30 V.S.A. §§ 209(d)(2)-(4) and the heating-and-process-fuel efficiency program created pursuant to 30 V.S.A. § 235.

Furthermore, the Board observes that the Federal Trade Commission ("FTC") has issued guidelines for the use of environmental marketing claims. Pursuant to 16 CFR Part 260.15(d), "If a marketer generates renewable electricity but sells renewable energy certificates for all of that electricity, it would be deceptive for the marketer to represent, directly or by implication, that it uses renewable energy." The Legislature should be aware that this regulation may have implications for SPEED resources generally, especially when the associated RECs are sold and claims are made regarding the ownership or production of renewable energy.

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6. 2011 Report at 29.

8001(a)(5) *Protecting and promoting air and water quality in the state and region through the displacement of those fuels, including fossil fuels, which are known to emit or discharge pollutants.*

and

8001(a)(6) *Contributing to reduction in global climate change and anticipating the impacts on the state's economy that might be caused by federal regulation designed to attain these reductions*.

Through the course of drafting this report, at least two policy options have been identified for pursuing the goals reflected in Sections 8001(a)(5) and (6): energy efficiency measures, and an RPS in which RECs are retired. Electric energy efficiency in Vermont inherently reduces the amount of electricity that must be produced in the state and region, including that produced using fuels which are known to emit or discharge pollutants. A Vermont RPS in which RECs are retired, rather than resold, could also displace electricity generation in the state and region that utilizes fuels known to emit or discharge pollutants, and could also contribute to the reduction in global climate change. However, the current SPEED program, which does not require the retirement of RECs, does very little to advance the goal of Section 8001(a)(5). Under the SPEED program, a utility in another state may, in part, meet its RPS obligation by purchasing Vermont RECs. As a consequence of such a purchase in a given case, the SPEED program provides an uncertain amount in the short term, and potentially zero in the long term, of incremental protection or promotion of air and water quality in the state or region through the displacement of polluting fuels.

8001(a)(7) *Providing support and incentives to locate renewable energy plants of small and moderate size in a manner that is distributed across the state's electric grid, including locating such plants in areas that will provide benefit to the operation and management of that grid through such means as reducing line losses and addressing transmission and distribution constraints*.

The current net metering program provides support, and in the case of photovoltaic generation[7], an incentive, to locate generation facilities of small and moderate size across the state's electric grid. The standard-offer program also provides support and an incentive for such generation facilities, and additionally, pursuant to Section 8005a(d)(2), provides support and an incentive for generation that will provide benefit to the operation and management of the grid. Accordingly, it seems these programs are functioning as intended, and are appropriate for pursuit of this goal.

> 8001(a)(8) *Promoting the inclusion, in Vermont's electric supply portfolio, of renewable energy plants that are diverse in plant capacity and type of renewable energy technology*.

As discussed in more detail below, Vermont currently has in place programs, including net metering, standard-offer, and SPEED, that promote a diversity of plant capacity. In addition, the standard-offer program, pursuant to Section 8005a(c)(2), requires that the cumulative plant capacity be allocated among specified categories of renewable technologies. These programs are appropriate for promoting the build-out of generation facilities that are diverse in plant capacity and type of renewable technology. However, the Board notes that the current SPEED and standard-offer programs do not promote the inclusion in Vermont's electric supply portfolio of any renewable energy with RECs attached, because under these programs the renewable attributes are sold out of state. Accordingly, an RPS in which the RECs associated with such generation facilities are retired would serve this purpose in place of the current SPEED program.

Different Categories of Renewable Energy Technologies

Act 170 added to the State's renewable energy goals 30 V.S.A. § 8001(a)(8), in which the General Assembly found it in the interest of the State to promote "the inclusion, in Vermont's electric supply portfolio, of renewable energy plants that are diverse in plant capacity and type of renewable energy technology."

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7. 30 V.S.A. § 219a(h)(1)(K) provides that an electric company shall offer a credit to each net metering customer using solar energy.

There are both benefits and costs associated with allocating a renewable energy policy among different categories of renewable technologies. For instance, one benefit of requiring a certain minimum technology diversification is that a certain technology that is economically competitive, yet undesirable for other reasons, will not dominate compliance with the standard as it would absent the diversification requirement. Diversification may also serve as support for a nascent technology that would take advantage of a state's resources, yet without such a diversification requirement would be bypassed for mature, commercially competitive technologies.

One of the costs of requiring a diversity of technology is that the overall cost of compliance will likely be greater than a renewable energy policy without such a requirement. Compliance costs can be minimized when market forces and available resources dictate the size and technology of new renewable generation resources. In addition, requiring a prescribed diversity of technologies adds complexity to procurement, compliance monitoring, administering, and even understanding the requirements of a renewable energy policy.

Vermont presently has distinct programs that deal with different categories of generation facilities: net metering for smaller-scale projects (up to 500 kW), standard offer for small and medium-scale projects (up to 2.2 MW), and SPEED for medium- and utility-scale projects (no size limit). The Legislature may wish to consider allowing new projects developed under each of these programs to count towards an RPS's goals.

It does not appear advisable to implement a renewable energy policy that requires a new allocation among different categories of renewable energy technologies. As the 2011 Report previously explained: "[A]n RPS that allows eligibility for a large number of technologies without regard to their size or geographic location will be more cost-effective on a megawatt-hours-generated basis."[8] Therefore, no compelling rationale has emerged so far for imposing an allocation requirement of renewable energy technologies beyond the technology allocation requirements of the standard-offer program.[9] If the Legislature found that additional allocation

8. *Analysis of Renewable Energy Policy Options for Vermont* at 24-25.

9. Section 8005a(c)(2) requires the Board to allocate the cumulative capacity among different categories of renewable energy technologies.

requirements are desirable, it should be aware that enacting such a requirement in a renewable energy policy would likely result in an overall increase in the cost of compliance with the policy. Instead, it may be more prudent to permit standard-offer projects to be eligible to count toward a renewable energy policy's goals, and that standard-offer projects, in concert with net-metered and large-scale resources, will help to achieve the new Section 8001(a)(8) goal.

Tiers that Reward Increasing Levels of Efficiency

The Board assumes that owners of generation facilities have inherent incentive to build and operate their facilities efficiently in order to maximize the number of MWh (energy) and RECs (one REC is assigned to each MWh of energy produced from a renewable generation facility) produced per dollar invested in the plant or expended in plant operation.

To date, the investigation underlying this report has identified only one example of an RPS requirement related to a tiered system of RECs that rewards increasing levels of efficiency. It relates specifically to woody biomass generator projects. On August 17, 2012, the Massachusetts Department of Energy Resources ("Mass DOER") adopted revised regulations pertaining to biomass generating unit overall efficiency.[10] Stated briefly, the Mass DOER regulations would grant a full REC value for generating units that achieve a 60% overall efficiency threshold, and decrease linearly to one half of a REC for generating units that achieve a 50% overall efficiency threshold.[11] In addition, the new regulations would grant no more than one half of a REC for generating units utilizing advanced technologies that achieve a minimum overall efficiency threshold of 40%. The Mass DOER regulations are an attempt to protect a limited forest resource, to assist Massachusetts' achievement of its greenhouse gas reduction goals, and to promote advanced technologies.[12]

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10. More information on the Mass DOER RPS Biomass Regulation may be found at: http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/biomass/renewable-portfolio-standard-biomass-policy.html

11. 225 CMR 14.05(8)(c)3a, b, and c.

12. *See* http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/biomass/renewable-portfolio-standard-biomass-policy.html

The benefits of such a tiered system that prescribes the level of overall system design efficiency are that (1) the system inherently protects the forest resource by requiring less woody biomass fuel to be harvested per unit of energy; and (2) the system assists in the regulation of air pollution. The costs of such a tiered system are that its efficacy is untested, and if the requirements are overly stringent then it may not be technically possible or economically reasonable to construct a facility that would comply.

It is unclear whether such a tiered system, focused on rewarding increasing levels of efficiency, is applicable to any other renewable technology category. Because a tiered system may only be applicable to one category of renewable technology, the best option may be to forego adopting a tiered system. As an alternative, the Legislature may wish to consider establishing a minimum design system efficiency threshold for woody biomass generation facilities.

If the Legislature enacts an RPS, then it may be advisable to design any such policy to take account of the requirements for woody biomass generating units of other New England states.[13] In conjunction with issuing the 2011 Report, it was noted in a supporting paper that "Although each state RPS inevitably has unique features, markets will be more robust and procurement costs lower if Vermont's ***resource eligibility definitions***, compliance mechanisms, compliance periods, and other RPS features were made as similar as possible to those of other New England states."[14] If a state adopts eligibility definitions that do not align with those of other states, it risks paying a higher cost for RECs that are not marketable in multiple jurisdictions.

By enacting 30 V.S.A. § 248(b)(11), the Legislature has adopted a standard that the Board must consider in petitions for certificates of public good ("CPG") for in-state generation facilities that produce electric energy using woody biomass. This standard requires that such generation facilities comply with the applicable air pollution control requirements under the Clean Air Act, incorporate commercially available and feasible designs to achieve a reasonable design system

13. It is the Board's understanding that Massachusetts is the only New England state has adopted woody biomass requirements, as described above.

14. *Analysis of Renewable Energy Policy Options for Vermont* at 26 (emphasis added).

efficiency, and comply with the harvesting guidelines and procurement standards that are consistent with the guidelines and standards developed by the secretary of natural resources pursuant to 10 V.S.A. § 2750. The voluntary harvesting guidelines are intended to help ensure long-term forest health. Thus, if the Legislature enacts an RPS, then it may wish to consider requiring that plants seeking RPS eligibility be required to demonstrate compliance with any guidelines or standards for woody biomass procurement and woody biomass harvesting that ANR promulgates pursuant to Act 170. The adoption of this measure, when coupled with the requirements of 30 V.S.A. § 248(b)(11), is likely to ensure that in-state woody biomass generation facilities will employ current, regionally consistent best practices that will promote long-term forest health while not unnecessarily increasing the cost of RPS compliance. Moreover, pursuant to 30 V.S.A. § 248(p), an in-state woody biomass electric energy generation facility must annually disclose to the Board the amount, type, and source of wood acquired to generate energy. This requirement may serve as both a measure of a facility's impact on natural resources and a test for compliance with an RPS.

III.B. Act 170, Section 7(a)(2)

The second part of Act 170, Section 7(a)(2), requires the Board to report on the following area of inquiry:

> *Examination of whether and how, either as part of a renewable portfolio standard or through other means, to provide incentives for renewable energy generation that avoids, reduces, or defers transmission or distribution investments, provides baseload power, reduces the overall costs of meeting the public's need for electric energy, or has other beneficial impacts.*

Transmission or distribution investments

Vermont currently has several mechanisms in place, through statutory requirements, that attempt to address transmission and distribution constraints.

1. 30 V.S.A. § 218c. Least-cost integrated planning

Subsection 218c(d) requires the owner and operator of electric transmission facilities within the state, in conjunction with any other electric companies that own or operate these facilities, to jointly prepare and file with the Department and Board a transmission system plan that looks forward for a period of at least 10 years. The objective of these plans is to identify the potential need for transmission system improvements as early as possible in order to allow sufficient time to plan and implement cost-effective non-transmission alternatives ("NTA") to meet reliability needs, wherever feasible. The plans must identify the demand or supply parameters that generation, demand response, energy efficiency or other NTA strategies would need to address to resolve the reliability deficiencies identified.

In order to accomplish the planning requirements of this subsection, the Board and stakeholders have created the Vermont System Planning Committee ("VSPC"), developed in the context of Docket No. 7081. The VSPC process is binding on all Vermont utilities, and calls for a 20-year transmission plan, above the statutory 10-year minimum. The VSPC includes both voting members (including three public members, VELCO, large distribution utilities with transmission assets, large distribution utilities without transmission assets, municipal utilities without transmission assets, and energy efficiency utilities) and non-voting members (including the Department and SPEED Facilitator). Together, the members review the long-range

transmission plan, seek public input on the plan, conduct analyses of NTAs where they can meet needs identified in the plan, and ultimately identify the best solutions for identified needs in compliance with the subsection 218c considerations.

In addition, this subsection requires each regulated electric or gas company to prepare and implement a least-cost integrated plan for the provision of energy services to its Vermont customers. The purpose of these plans is to meet the public's need for energy services, after safety concerns are addressed, at the lowest present-value life-cycle cost, including environmental and economic costs, through a strategy combining investments and expenditures on energy supply, transmission and distribution capacity, transmission and distribution efficiency, and comprehensive energy efficiency programs. Retail electricity providers are required to incorporate into their least-cost integrated planning processes the most recently filed long-range transmission plan, and to cooperate as necessary to develop and implement joint least-cost solutions to address reliability deficiencies.

These integrated plans are regularly reviewed by the Board and the Department. In practice, whenever a regulated electric or gas company petitions the Board for a certificate of public good ("CPG") under Section 248 for the construction of transmission or generation facilities, they must demonstrate under Section 248(b)(2) that the proposed facility is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy-efficiency and load-management measures, including but not limited to those developed pursuant to the provisions of subsection 209(d), section 218c, and subsection 218(b). In addition, the company must demonstrate under Section 248(b)(6) that the proposed facility is consistent with the principles for resource selection expressed in that company's approved least-cost integrated plan.

2. 30 V.S.A. § 209(d)(4). Jurisdiction; general scope

In its evaluation of the volumetric charge that it may establish under Section 209(d)(3) for the support of energy efficiency programs (the energy efficiency charge or "EEC") that meet the requirements of Section 218c, the Board is required under this subsection to determine an

appropriate balance among several objectives, including limiting through energy efficiency services the need to upgrade the state's transmission and distribution infrastructure.

In its consideration and approval of energy efficiency budgets for Efficiency Vermont, the statewide energy efficiency utility, the Board has designed, in concert with the Department, electric utilities, and other stakeholders, a program that targets energy efficiency investments in locations where incremental energy efficiency measures may defer or avoid utility transmission or distribution investments that would otherwise be required to address an identified constraint.

3. 30 V.S.A. § 8005a. SPEED; Standard Offer Program

Act 170 added 30 V.S.A. § 8005a, which governs the SPEED standard-offer program. Section 8005a(d)(2) requires the Board to make standard offers available to plants that it determines will have sufficient benefits to the operation and management of the electric grid or a provider's portion thereof because of their design, characteristics, location, or any other discernible benefit. These plants are intended to help mitigate transmission and distribution constraints. Such plants' capacities will not count toward the 127.5 MW cumulative plant capacity limit of the program.

The Board and stakeholders are actively developing, in Docket No. 7873, a screening framework that will provide developers with adequate information regarding areas where generation having particular characteristics are reasonably likely to provide sufficient benefit to the operation and management of the electric grid, such that the generation would qualify for eligibility under Section 8005a(d)(2). The Board is required to make a determination regarding this screening framework no later than March 1, 2013.

These mechanisms, pursuant to the statutory requirements of Sections 218c, 209(d)(4), and 8005a(d)(2), may meaningfully contribute to the avoidance, reduction, or deferral of transmission and distribution investments by Vermont's electric utilities. The efficacy of the standard-offer program in addressing such investments has not yet been tested, and the geographically targeted energy efficiency programs are relatively nascent. As the Board and stakeholders gain experience with their implementation it is likely that they will be effective in

achieving their intended result. However, it should be noted that not all transmission and distribution investments can be addressed through these mechanisms due to circumstances outside the control of the Board, the Legislature, and other stakeholders. For example, the reliability standards of the North American Electric Reliability Corporation ("NERC") are regularly reviewed and updated, and may require a utility to conform to new standards within a short time frame, such that energy efficiency or generation solutions would not be able to address the need for a transmission or distribution investment.

Generation facilities that are part of a renewable energy policy could also make meaningful contributions to the avoidance, reduction, or deferral of transmission and distribution investments depending on the attributes and location of the facility. In some cases a new generation facility could require an increase in transmission and distribution investments. In the event that the Legislature adopts an RPS, it could attach a known, pre-determined RPS multiplier to projects that can, if they so choose, demonstrate that they are part of a preferred NTA solution to an identified transmission or distribution constraint. However, it bears reiterating that it is best not to create RPS policies with the objective of addressing all aspects of the public's need for energy services, thereby adding additional complexity. Accordingly, it appears undesirable for an RPS to require that proposed generation facilities address this criteria.

Baseload Power

The available baseload renewable energy generation technologies include landfill methane, agricultural methane, hydro, and biomass. Each of these technologies is, to a certain extent, resource constrained: there are only so many available landfills, farms, waterways, and trees. The Legislature has already created incentives for the in-state development of these technologies through the standard-offer program. In addition, the Legislature has provided incentives for one existing large-scale biomass project (*see* 30 V.S.A. § 8009 - Baseload renewable power portfolio requirement). Other than these programs, there are no current statutory incentives for large-scale baseload renewable generation projects, beyond the ability to

raise revenue through the sale of RECs. The total renewables targets established in Act 170[15], in addition to a utility's portfolio needs, may provide incentive for incremental renewable baseload generation. At this time, there is no apparent compelling rationale to create additional incentives targeted specifically at renewable baseload generation.

Reduction of the Overall Cost of Meeting the Public's Need for Energy

It would seem there are at least three ways in which an RPS may, in part, reduce the overall cost of meeting the public's need for energy. These include: the so-called "price-suppression effect," the potential avoidance of increased future costs through long-term, stably priced contracts, and the avoidance or deferral of incremental transmission and distribution investments through strategic siting of generation facilities.

The 2011 Report provided an introduction to the price-suppression effect concept and gives one estimate of the price-suppression effect of the Board's then-proposed policy.[16] In theory, most renewable generators, especially those that are non-fuel based, should have lower operating costs than non-renewable generators. This should enable renewable generators to bid their energy output into wholesale markets at relatively lower prices. When a generator bids its energy output into a market at relatively low prices, a higher-cost generator will be displaced. This results in a lower wholesale electricity price applied to all electricity traded in that market during that period, not just the renewable resource. It is important to not put undue emphasis on this effect, as the magnitude may be difficult to determine, and because of the many other factors that affect market prices. While there can be no certainty regarding the magnitude of this effect in Vermont, it would be reasonable to conclude that the addition of new generation resources with zero variable fuel costs would have qualitatively similar results.

Another benefit of increased penetration of renewable generation which may at times reduce the overall cost of meeting the public's need for energy is that, for non-fuel based renewable generation, the volatility associated with wholesale market prices for fuel-based

15. Act 170 created the following targets, codified as 30 V.S.A. § 8005(d)(4)(A): 55% of each retail electricity provider's annual electric sales during the year beginning January 1, 2017, increasing by an additional four percent each third January 1 thereafter, until reaching 75% on and after January 1, 2032

16. *See* Study on Renewable Energy Requirements, 2011, at 15.

generation is avoided. This is especially true when such energy is procured through long-term stably priced contracts. However, such long-term stably priced contracts come with a price premium, regardless of whether any associated RECs are retired or resold, due to the hedging premium inherent in long-term contracts. This hedging premium is associated with all types of generation, not just renewables.

In addition, as discussed above, strategically placed generation facilities may have the effect of avoiding or deferring more costly transmission and distribution alternatives. This is particularly true when such generation is part of a portfolio solution that may include customer demand response and targeted energy efficiency.

It may be prudent for these potential cost reducers to be considered in the broader context in which certain renewable technologies are currently materially more costly than market wholesale power. Thus, while renewable generators can have certain attributes that would contribute to a reduction in cost, there are at the same time countervailing cost pressures that may mitigate those beneficial attributes.

Appendix A

Comments on Staff Draft Report

On November 27, 2012, Board staff issued a draft report and set a deadline for initial and follow-up comments on the draft report. In addition, Board staff convened a workshop at which stakeholders provided further comment and information. The following stakeholders submitted comments on the draft report: the Agency of Natural Resources, Associated Industries of Vermont, Benjamin Luce, Conservation Law Foundation, Green Mountain Power Corporation, Renewable Energy New England, Renewable Energy Vermont, Vermont Electric Cooperative, Inc., Vermont Energy Investment Corporation, Vermont Public Power Supply Authority, and Vermonters for a Clean Environment. The full comments are attached.

While not all stakeholder input was ultimately adopted in this report, the Board recognizes the importance of the comments, observations and information provided, and conveys them to the Legislature by including them herein.

Knauer, Thomas

From: Hopkins, Asa
Sent: Tuesday, November 20, 2012 10:32 AM
To: Knauer, Thomas
Subject: FW: ANR comments on PSB RPS Further Analysis Report

See comments from ANR below.
On Section IV, I think that by "regardless of location" you meant "in Vermont or outside," not the siting concern that ANR raises.
Asa

From: Coster, Billy
Sent: Tuesday, November 20, 2012 9:53 AM
To: Hopkins, Asa
Cc: Groveman, Jon; Dillon, Judith; Einhorn, Donald; Snyder, Michael
Subject: ANR comments on PSB RPS Further Analysis Report

Asa,

Here are ANR's initial comments on the Board's RPS report. Please let me know where this stands in the process as there are some areas of the report where ANR may be able to provide the PSB substantive input and expertise, which may inform their ultimate recommendations. Thanks.

Page 6 – main paragraph.
This paragraph focuses on how the harvesting and procurement guidelines required by Act 170 may apply to wood fuel procurement under a RPS. Notwithstanding the fact that Commissioner Snyder is likely to seek significant changes to Act 170 in the coming session to clarify the intend of the harvest plan and procurement policy section of the bill, there are several statements in the draft report that are problematic:

- In the draft the "Board recommends that any voluntary aspect of the Section 2750 guidelines and standards should be made mandatory for plants seeking RPS eligibility." This mandate is too broad. Sec. 248(b)(11) calls for harvest standards that are consistent with the Act 170 guidelines, but not identical. Some of the voluntary guidelines we would create under Act 170 would potentially be irrelevant or even contradictory to guidance provided for woody biomass procurement, others would not be stringent enough. I suggest that the Board instead recommend consistency with any guidelines or standards for woody biomass procurement and harvesting ANR promulgates under Act 170.
- The report goes on to say "The Board further recommends that ANR and FPR regularly review the guidelines and standards that have been adopted in the region, and update the Vermont guidelines and standards as necessary to reflect current best practices." This concept is fine, but we would prefer the Board be more specific with regards to the terms 'regularly' and 'the region', and provide some clarity around what they mean by 'current best practices'. FPR staff are willing to work with PSB staff to recommend appropriate measures/criteria for best practices.
- The report then suggests that "adoption of these recommendations, when coupled with the requirements of 30 VSA 248(b)(11), will ensure that in-state woody biomass generation facilities will… protect long-term forest health.." While these measures will certainly help promote forest health over the status quo, there is no way to "ensure" that these facilities will "protect long-term forest health". In reality, the best thing for forest health in Vermont is probably not to extract new, large quantities of wood fuel for electric led biomass facilities – if new plants are proposed and operated, the harvest guidelines and procurement standards are necessary to manage, minimize and mitigate the impact on forest health to a level that is reasonable.
- Finally, if there is an interest in tracking how implementation of these guidelines actually affect long term forest health, FPR will need additional compliance monitoring capacity so we can track whether the standards are being met and the resulting impact on forest health and sustainability.

Section III – page 11.

This section looks at the state's existing renewable energy goals. Overall the discussion does not seem to adequately address the impacts on natural resources that may result from new generation and transmission facilities. Specifically in the discussion of:

- 8001(a)(1) – shouldn't environmental impacts be considered in the balance of lifetime cost, benefits, rates, etc.?
- 8001(a)(2) – there is no discussion of the "energy that uses natural resources efficiency" concept of the goal. Different renewable technologies use natural resources at different rates and efficiencies, and there exist a range of technologies and construction techniques within each category that may result in more or less efficient use of these resources. The siting of facilities may also impact how resources are used and impacted. There is no discussion of the use of resources in this section and there should be.
- 8001(a)(5)and(6) – different renewable applications displace fossil fuels at different rates and in some cases – biomass in particular – there may be significant mid-term net GHG emission. Should there be some consideration of the respective value of REC's for different categories of generation related to their actual displacement of fossil fuel and impact on climate change?

Section IV. Recommendations.

The second goal of 30 VSA 8001, to "Encourage the development of the most cost-effective new renewable resources, regardless of location," should be challenged. The appropriate siting of renewable facilities has been and remains a significant and costly challenge to developers, state agencies, and communities around the state. It would seem appropriate to at a minimum acknowledge that sometimes the most cost-effective place to build new generation is not the best location. The work of the Governor's Energy Generation Siting Policy Commission may be appropriate to reference in this section. If the Legislature again entertains establishment of an RPS in Vermont, siting issues should be addressed in a more proactive and balanced way than is suggested in goal #2.

_____

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ASSOCIATED INDUSTRIES OF VERMONT

REPRESENTING THE VERMONT INDUSTRIAL AND BUSINESS COMMUNITY SINCE 1920

December 7, 2012

Susan Hudson
Clerk, Public Service Board
112 State Street, Drawer 20
Montpelier, VT 05602

RE: Act 170 Renewable Portfolio Standard Report

Dear Ms. Hudson:

The following provides initial comment on the considerations contained in Sections 7(a)(1) and (2) of Act 170 and feedback on the draft "Further Analysis and Report on Renewable Energy Requirements" as requested in the Board's November 27 Memorandum.

Initial Comments Addressing Act 170

With regard to Section 7(a)(1), the 2011 Board process and subsequent debate in the Legislature made it clear that an RPS would, on the one hand, impose significant costs on Vermont ratepayers – of particular concern to commercial and industrial ratepayers with resulting harm to investment, wages, and job security. On the other hand, an RPS would provide negligible economic or environmental benefits owing to Vermont's small market size, low long term employment by most renewable energy facilities, and already extremely clean environmental attributes – especially with an electric portfolio that contributes very little to the state's greenhouse gas emissions in the first place.

Therefore, the Board should recommend that the Legislature not adopt an RPS. An RPS runs counter to responsibility for the welfare of Vermont ratepayers and the net costs and benefits to the state's economy, health, and environment as a whole.

As for the balance of 7(a)(1), any RPS that might be adopted should focus squarely on cost effectiveness and reliability – therefore technology, scale, and other preferences or requirements independent of this focus should be avoided.

With regard to Section 7(a)(2), to the extent that meeting the goals discussed reduces ratepayer costs and increases reliability, such incentives could be part of a better designed RPS. However, other regulatory requirements exist or could be developed to achieve these goals without an RPS and the overall net costs that would come with an RPS.

Initial Feedback on Draft Report

With regard to the draft report itself, AIV believes that support for an RPS in the report is contrary to the welfare of Vermont ratepayers and that the net costs and benefits of an RPS speak against such a policy. In addition to this fundamental concern, however, there are other more specific issues that should be addressed.

Overall Costs and Benefits

As with the 2011 Board process and report and the subsequent Legislative process, this new draft report does not provide the scope and clarity of economic impact analysis required for responsible recommendations on such a significant policy question. In addition to rate impacts, the negative effect of such impacts on business investment, wages, and job security are critical factors to better understand and consider. In providing this analysis, the concerns raised in 2011 about overestimating the baseline market comparison costs because of insufficiently accounting for the effect of natural gas advances, and about underestimating renewable project and contract costs relative to the real-world experiences of Vermont utilities, still need to be addressed.

Similarly, the level of long term employment associated with renewable energy facilities and the value of a small Vermont RPS-driven market in providing substantial support for the renewable energy manufacturing sector and market-driven advances in technology or cost effectiveness need to be clarified and understood.

Finally, the report needs to clearly present and substantiate the likely environmental benefits for both Vermont and the region, including greenhouse gas emissions and other effects, in both absolute and relative terms so that the costs of an RPS can be assessed appropriately in that context.

Issues Related to RECs

Within the context of an RPS, AIV disagrees with the draft report's support for requiring that RECs be retired. On the one hand, the sale of RECs can make a significant difference in the cost of renewable contracts to ratepayers, and it makes renewable energy projects above and beyond mandatory contracts more attractive to utilities. On the other hand, given the volume of Vermont RECs available relative to the volume of renewable energy acquired in other states, it is unclear that the "transfer" of renewable attributes from Vermont to other states should be of any great concern.

On a specific point, the draft report's statement that the sale of RECs under SPEED means that there is "no incremental protection or promotion of air and water quality in the state or region through the displacement of polluting fuels" appears highly problematic. Specific cases will vary of course, but if a Vermont utility contracts with renewable energy generation rather than generation that pollutes the state's air or water and then sells its RECs to a neighboring state's utility, it does not necessarily follow that the other utility will then contract with or build generation that will actually pollute Vermont's air or water. Such an effect would depend on location, technology, etc. In fact, the other utility might not even purchase power from a generator that negates the regional air or water benefits of the Vermont utility's action – again, it depends on "what" and "where" the other generation is.

It is also unclear what relevance the report's discussion of the FTC-related considerations should have for our purposes. Vermont is not a deregulated state, and there is not a meaningful "marketing" dimension to Vermont customers buying electricity from their utility apart, perhaps, for green pricing programs. Discussing concerns about deception or fraud in the context of RPS mandates appears to be wandering far from the important questions at hand. The fate of RECs should be determined based on the more relevant questions of ratepayer costs, development incentives, and environmental effects.

The report needs to analyze clearly the costs to ratepayers of allowing RECs to be sold or not, the absolute and relative share and impact of Vermont RECs for the REC market and the amount of renewable energy development and contracts in the region, and better evidence regarding environmental impacts of REC sales for the region and especially Vermont itself.

We appreciate the opportunity to provide these initial comments and feedback. Please do not hesitate to contact us if you have any questions.

Sincerely,

William Driscoll
Vice President

cc: email distribution list

ASSOCIATED INDUSTRIES OF VERMONT

REPRESENTING THE VERMONT INDUSTRIAL AND BUSINESS COMMUNITY SINCE 1920

December 20, 2012

Susan Hudson
Clerk, Public Service Board
112 State Street, Drawer 20
Montpelier, VT 05602

RE: Act 170 Renewable Portfolio Standard Report

Dear Ms. Hudson:

The following provides further comment on the considerations contained in Sections 7(a)(1) and (2) of Act 170 and feedback on the draft "Further Analysis and Report on Renewable Energy Requirements" as requested in the Board's November 27 Memorandum.

As stated in our initial comments of December 7:

[T]he 2011 Board process and subsequent debate in the Legislature made it clear that an RPS would, on the one hand, impose significant costs on Vermont ratepayers – of particular concern to commercial and industrial ratepayers with resulting harm to investment, wages, and job security. On the other hand, an RPS would provide negligible economic or environmental benefits owing to Vermont's small market size, low long term employment by most renewable energy facilities, and already extremely clean environmental attributes – especially with an electric portfolio that contributes very little to the state's greenhouse gas emissions in the first place.

Within the context of an RPS, AIV disagrees with the draft report's support for requiring that RECs be retired. On the one hand, the sale of RECs can make a significant difference in the cost of renewable contracts to ratepayers, and it makes renewable energy projects above and beyond mandatory contracts more attractive to utilities. On the other hand, given the volume of Vermont RECs available relative to the volume of renewable energy acquired in other states, it is unclear that the "transfer" of renewable attributes from Vermont to other states should be of any great concern.

Therefore, the Board should recommend that the Legislature not adopt an RPS. An RPS runs counter to responsibility for the welfare of Vermont ratepayers and the net costs and benefits to the state's economy, health, and environment as a whole.

The initial written comments submitted and subsequent points made by AIV and utilities in the December 11 workshop identified a number of points of concern that are either insufficiently or not addressed or included in the draft report. The following summarizes key issues and areas of analysis that should be part of any recommendation to the Legislature and part of any subsequent legislative investigation.

- A thorough and clear analysis of rate impacts and the negative effect of such impacts on business investment, wages, and job security. This analysis needs to reflect realistic market cost forecasts and development and contract costs associated with renewable energy projects.

- A thorough and clear analysis of long-term employment associated with renewable energy facilities and the realistic value of a small RPS-driven Vermont market in providing substantial support for the

renewable energy manufacturing sector and market-driven advances in technology or cost effectiveness.

- A thorough and clear analysis of likely environmental benefits for both Vermont and the region, including greenhouse gas emissions and other effects, in both absolute and relative terms. This should include an analysis of Vermont's current environmental health, absolute and net greenhouse gas emissions, and the relative contributions of Vermont's electric portfolio.

- A thorough and clear analysis the costs to ratepayers of allowing RECs to be sold or not, the absolute and relative share and impact of Vermont RECs for the REC market and the amount of renewable energy development and contracts in the region, and better evidence regarding environmental impacts of REC sales for the region and especially Vermont itself.

- A thorough and clear analysis of the reliability and cost risks of increasing intermittent renewable energy dependence in Vermont's electric portfolio.

- A thorough and clear analysis of Vermont's existing and projected level of renewable energy dependence relative to the existing and RPS-mandated levels in the other states with and without an RPS.

- An analysis of potential cost benefits of delaying additional renewable mandates or incentives for Vermont utilities over the next 20 to 30 years owing to advances driven by the larger regional, national, and international markets.

We appreciate the opportunity to provide these further comments and feedback. Please do not hesitate to contact us if you have any questions.

Sincerely,

/s/

William Driscoll
Vice President

cc: email distribution list

Comments on the PSB report "Further Analysis and Report on Renewable Energy Requirements" [Act 170 Renewable Portfolio Standard Report]

Submitted by Ben Luce, Ph.D.
December 6, 2012
Contact: ben.luce@lyndonstate.edu

First, I fully support the PSB's general conclusions that Vermont should adopt a legitimate RPS with high percentage targets, and that requires the retirement of RECs.

Secondly, I agree that that this policy "should be used to accomplish what it can efficiently, and be complemented by other policies and programs." In particular, I believe it should be tightly coordinated with and as part of a *comprehensive greenhouse gas reduction policy* that will ensure the maximum possible rate of decrease in greenhouse gas emissions occurs in Vermont overall at reasonably low costs.

I am, however, concerned about a number of issues associated with the PSB's report, and with how an RPS will be implemented in general, and I present some suggestions below as to how these can be addressed.

First, I believe it is essential that any RPS be designed so as to fully protect the fragile environment and tourist economy of Vermont, and be specifically designed to maximize public support for renewable energy both in Vermont and in the larger region. I do not believe that either additional utility-scale biomass-fired electricity generation or high elevation wind generation facilities in Vermont are consistent with these goals. I strongly agree with the following comments from the "Analysis of Renewable Energy Policy Options for Vermont" that was previously prepared for the PSB in 2011 by the contractor Sustainable Energy Advantage:

> *A state may choose to design its RPS explicitly in a way that will ensure strong and increasing public support for renewable energy policy in the future. If this is a priority for Vermont, it implies:*
>
> - *Focusing on those technologies and types of projects that are most popular with Vermonters, while avoiding those projects that are perceived to be problematic (even if policymakers think they are beneficial).*
> - *Focusing on technologies, such as solar, that all Vermonters can install.*
> - *Making sure that the RPS will be perceived to be a success. This means having targets that are ambitious enough to be perceived to be meaningful, but not so aggressive that the state will fall short or that Vermonters will conclude that it costs too much for the state to support renewable energy through an RPS.*

More specifically, I believe that it is possible to meet most or all of a strong RPS schedule in a reasonably timely manner with small to mid-scale distributed generation, particularly solar generation, all of which does not require any deforestation, bulldozing and blasting, significant noise generation, significant aesthetic impacts, or present hazards to wildlife. It is not hard to demonstrate that the solar resource in New England, for example, is in fact the largest onshore renewable resource in the region by fact, that it is the only onshore renewable resource that can provide most or all of the region's power needs in the future, and that this can be accomplished in principle with minimum impacts to land, wildlife, and aesthetics.

Moreover, the cost of solar has been dropping dramatically over the past five years, the cost of power from larger solar projects is now at or near the cost of power from high elevation wind projects, and there are ample technical reasons to suppose that the cost of solar power will continue to drop and that photovoltaic power will become significantly less expensive than wind power in the relatively near future.

The current trend in solar costs was at least partially acknowledged by the "Analysis of Renewable Energy Policy Options for Vermont" that was previously prepared for the PSB in 2011 by the contractor Sustainable Energy Advantage:

> *Although solar photovoltaic (PV) generators today produce far less energy than wind or biomass, the solar sector is experiencing marked growth in most New England states. This is due to the confluence of recently developed or expanded policies - including RPS solar carve-outs, net metering, standard offer contracts, and federal tax credits – and rapidly falling costs. Individual state programs will provide incentive for the development of anywhere from a dozen to 400 MWs of solar energy development over the next several years.*

This report, however, still omits a crucial area of analysis: It has not included projections for what might be possible for a Vermont RPS based on mostly distributed generation, including the possible and/or likely cost decrease scenarios for distributed generation in coming years. Instead, this report merely follows the current dominant paradigm of RPS programs that include only a minority role for distributed generation, if any, via mechanisms such as solar carve-outs. This paradigm is now in fact out-dated due to increasing concerns about possible adverse impacts associated with utility-scale renewables, and also the dramatic and ongoing decreases in the cost of solar. It is particularly no longer suited to the needs of a state such as Vermont that has relatively small power demand, precious natural assets that need to be protected, and a strongly innovative and independent spirit.

The cost assumptions employed in the SEA analysis are also not transparent, and in any case do not appear to fully factor in the full transmission costs of significant additional utility-scale renewable energy generation in the Northeast, or the transmission cost savings potential of an RPS based primarily on distributed generation. And finally, these estimates do not factor in the likely economic downsides to Vermont of widespread aesthetic and environmental degradation associated with utility scale wind development.

In summary, I believe that the most rapid and economical path for greenhouse gas reductions in Vermont does not lie in driving very large near-term investments in utility-scale renewable power generation with an RPS designed along conventional lines, but rather in a more carefully selected combination of investments in a steadily increasing level of distributed generation along with weatherization, efficiency, electric transportation, and the increased use of renewable heat sources such as air source and geothermal heat pumps.

To that end I suggest that a Vermont RPS be based mainly on the purchase of RECs from distributed generators, primarily net-metered generation, as a means of cost-effectively incenting distributed generation development that is ideally tailored to load, combined with carefully targeted investments in energy storage technology and other smart-grid enhancements aimed at increasing the possible percentage of intermittent distributed generation on the Vermont grid.

Next, I also have concerns regarding the technical accuracy of the reasoning used in the PSB report to justify RPS related investments, in particular arguments connected with "price-suppression effect". Specifically, page 18 of the PSB's report "Further Analysis and Report on Renewable Energy Requirements," contains the following statement:

> *There are at least three ways in which an RPS may, in part, reduce the overall cost of meeting the public's need for energy. These include: the so-called "price-suppression effect," the potential avoidance of increased future costs through long-term, stably priced contracts, and the avoidance or deferral of incremental transmission and distribution investments through strategic siting of renewable generating facilities.*

Following this, in the subsequent discussion of the "price-suppression effect", the report states:

> *Several states that have implemented an RPS, including Illinois[16], Massachusetts[17], and New York[18], have observed this effect in practice, and the Board's consultants in the 2011 report provided estimates of what this effect might produce in Vermont under several policy scenarios. While there can be no certainty regarding the magnitude of this effect in Vermont, it would be reasonable to conclude that the addition of new generation resources with zero variable fuel costs would have qualitatively similar results.*

An examination of the report from other states cited by the report, however, reveals that the results and/or projections reported for both Massachusetts and New York rely heavily on the assumption that RPS requirements in those states will be met mainly with RECs purchased at levels far below the actual current and projected costs of renewable power. For example, the New York report, on page 32, states:

> *Each MWh of renewable energy added has the effect of lowering electricity costs by approximately $100 per MWh of renewable energy produced, significantly more than the weighted average of $15 paid per MWh for the REC in the third procurement. Price suppression is expected to be higher in the beginning years of the RPS than in its later*

> *years, as the first three procurements will avoid the highest cost resources on the electricity market supply curve.*

In kWh terms, the REC purchase price quoted here is 1.5 cents/KWh. Similar REC prices are assumed in the Massachusetts report. It is well known, however, that actual wind power costs in Vermont are at or above 10 cents, even with subsidies and the sale of RECs to out-of-state entities factored in. It is also well known that a significant build out of wind generation in the Northeast, that is, on the scale adequate to meet the combined RPS targets of Northeast states, would require extensive and very costly investments in transmission capacity. This is tacitly acknowledged in the Massachusetts report, which states that:

> *Our initiatives to increase the percentage of electrical generation by clean or renewable energy should incorporate the opportunities presented by potentially lower-cost energy sources, including on-shore wind in Northern New England and hydro from Eastern Canada, as long as contracts are based on our competitive wholesale market and that transmission costs are not socialized.*

In other words, the Massachusetts results are basically predicated on the assumption that ratepayers in that state simply won't have to pay for the transmission.

More generally, it is well known that electricity generation costs have decreased significantly in the Northeast recently due to strong decreases in the cost of natural gas. The report by the Board's consultants in 2011 ("Analysis of Renewable Energy Policy Options for Vermont") claims that there will be some level of cost offsets, but this report is not transparent enough for its claims to be to verified, and in any case this analysis is likely based on somewhat outdated avoided cost estimates and the omission of a full accounting of transmission costs.

It is therefore difficult to see how the PSB report can reasonably conclude that the addition of large amounts of utility-scale renewable power generation in Vermont and the Northeast in the near term would likely lead to any cost offsets at all, let alone actual reductions in electricity costs to ratepayers.

I believe that strongly reinforces the conclusion that the only cost effective path to a large percentage of renewable power in Vermont and the Northeast as a whole is in fact via a somewhat more gradual deployment of distributed generation, so as to avoid costly transmission investments and to take full advantage of ongoing cost decreases of distributed generation.

I therefore strongly urge the PSB to continue to advocate for the adoption of an RPS in Vermont, but one that much more fully takes advantage of the possible advantages of distributed generation and that is a well-coordinated with a comprehensive greenhouse gas reduction program.

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December 20, 2012

Susan Hudson, Clerk
Vermont Public Service Board
112 State St. Drawer 20
Montpelier, VT 05620-2701

RE: Act 170 Renewable Portfolio Standard Report

Dear Ms. Hudson:

Pursuant to the Vermont Public Service Board (Board) memorandum of November 27, 2012, Conservation Law Foundation (CLF) offers the following comments on the Board Staff's draft analysis and report (Draft Report) in response to the requirements and considerations of Act 170.

Conservation Law Foundation supports many of the policy options recommended by the Draft Report. Overall, the recommendations provide helpful insight on how policies can be improved to advance state goals in a cost effective manner.

Changes Needed to Address Climate Change
Climate change is the biggest environmental challenge of this generation. It is a focus of much of CLF's work and advocacy. Vermont in particular has been hard hit already by climate change. It is imperative that Vermont continue its efforts to reduce greenhouse gas emissions. Policy changes regarding renewable energy requirements are important improvements to make Vermont's climate goals a reality and begin turning the tide on climate change.

Renewable Portfolio Standard with Retirement of Renewable Energy Credits
CLF strongly supports Vermont having a Renewable Portfolio Standard (RPS) that includes retiring the Renewable Energy Credits (RECs). As recognized in the Draft Report, this is needed to meet Vermont's goals regarding climate change. The Sustainably Priced Energy Enterprise Development (SPEED) program alone, which allows the RECs to be sold, fails to displace electricity generation that emits greenhouse gases. In order to meet Vermont's climate change and emissions goals it is critical that the renewable energy used by Vermonters not include the sale of the RECs to others. As the Draft Report recognizes: "As a consequence of such a transaction, the SPEED program will provide no incremental protection or promotion of air and water quality in the state or region through the displacement of polluting fuels." (Draft Report at 8).

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conservation law foundation

An RPS with the retirement of RECs is also needed to ensure that Vermont's actions are compatible with Federal Trade Commission (FTC) guidelines regarding environmental marketing claims. Vermont's current activities where it claims SPEED resources are renewable for purposes of counting them in Vermont, while at the same time selling the RECs out of state, run afoul of the FTC requirements and leave Vermont's programs vulnerable to a costly and embarrassing challenge. On many climate change matters, Vermont has been a strong national leader. Changes that put in place an RPS with the retirement of RECs are needed to make the climate benefits of Vermont's electricity supply a reality.

Energy Efficiency Should Not be Included in an RPS

Vermont currently has strong and successful energy efficiency programs. These are working well and provide specific climate, generation, and transmission benefits as well as cost savings for all customers. The goals and management of an RPS are different than energy efficiency and including energy efficiency in an RPS would likely weaken Vermont's efficiency efforts and could undermine renewable development. Instead, Vermont should consider building on the success of its efficiency efforts and seeing how aspects of those programs could be used for renewable development, such as central or coordinated procurement which could keep overall costs down and improve coordination.

Administration Efficiency

CLF supports an RPS program that is simple, easy to administer and compatible with other states programs. This will help keep costs down and provide the most certainty for developers, consumers and utilities. As the electricity supply market is regional, the REC market should be regional as well and Vermont's efforts and definitions should align those in other states.

Thank you for this opportunity to provide comments. CLF looks forward to working with the Board and others to advance Vermont's renewable energy requirements.

Sincerely,

Sandra Levine

Sandra Levine
Senior Attorney

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December 7, 2012

Ms. Susan M. Hudson, Clerk
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People's United Bank Building, Fourth Floor
112 State Street, Drawer 20
Montpelier, Vermont 05620

Re: Further Analysis and Report on Renewable Energy Requirements
Preliminary Comments

Dear Ms. Hudson:

On November 27, 2012, Public Service Board ("Board") staff shared for comment a draft *Further Analysis and Report on Renewable Energy Requirements* (the "Report") prepared in response to the requirements and considerations of Act 170. The Board encouraged stakeholders to provide written feedback on the draft as well as to submit information and comment on the considerations contained in Sections 7(a)(1) and (2) of Act 170. This letter will serve as Green Mountain Power Corporation's ("GMP") preliminary comments and is submitted in accordance with the Board's request.

Act 170 requires that the Board submit a Report that provides further analysis of renewable policy options that the Legislature may use, in conjunction with the Board's 2011 initial report, to make a determination as to the appropriate energy policy for Vermont. The draft Report provides further analysis on whether and how to:

> …establish a renewable portfolio standard in Vermont, including consideration of allocating such a standard among different categories of renewable energy technologies and of creating, for renewable energy plants, a tiered system of tradeable renewable energy credits as defined under 30 V.S.A. § 8002 or other incentives that reward increasing levels of efficiency; and
>
> …provide incentives for renewable energy generation that avoids, reduces, or defers transmission or distribution investments, provides baseload power, reduces the overall costs of meeting the public's need for electric energy, or has other beneficial impacts.

The Report includes proposed recommendations, reasons for those recommendations and model implementation mechanisms.

GMP appreciates the opportunity to offer comments on the draft Report. The issues addressed are important and will have long-lasting impacts on the provision of electric service to customers. A cornerstone of GMP's energy strategy is the development of meaningful cost effective renewable energy generation in Vermont. Green Mountain Power customers have long expressed an interest in more renewable energy and therefore we philosophically support this policy direction, especially as it pertains to meeting future load obligations with a substantial fraction of energy produced by renewable sources. As it relates to implementation of this goal, we believe the challenge will be how to do this in a cost effective manner. As some of our comments below indicate, we recognize that while the existing SPEED framework has some limitations, it also has some successful aspects that should be considered as Vermont's renewable policies are refined.

GMP recognizes that substantial effort has gone into the development of the draft Report; we expect that stakeholders are now beginning to review and consider its policy recommendations and proposals. Given the limited opportunity available for review, these comments are necessarily limited to key points that the company has identified to date. GMP may supplement its positions as the Report is further considered.

a. Programmatic Role for Tradeable Renewable Energy Credits ("RECs").

The draft Report seeks clarification from the Legislature on the prioritization of Vermont's competing policy goals, and describes the tension between the design of the Sustainably Priced Energy Enterprise Development ("SPEED") program and the desire to incorporate renewable energy within the resource portfolios supplied to Vermont consumers. The Report also provides recommendations as to the program designs that best serves the individual renewable energy goals established under 30 V.S.A. § 8001(a).

In the section commenting on Section 8001(a)(3), the draft Report questions whether Vermont's policies encourage utilities to enter into long-term stably priced contracts with developers that bundle energy, capacity, and tradeable RECs. The Board seeks input to determine if such agreements are pursued by retail service providers. GMP can report that it has entered into a number of agreements with SPEED qualified resources that provide for such purchases; two examples are long-term bundled purchases supported by the Granite Reliable wind plant in New Hampshire, and the Moretown landfill generation project in Vermont. The company has made significant near-term REC sales supported, in part, by these purchases. Such REC revenues serve to lower GMP's net power supply costs, and therefore the retail electric rates that our customers pay. In a longer-term sense, the bundled purchases have served as a hedge against the possibility that utilities may need to acquire RECs to meet a future Vermont Resource Portfolio Standard ("RPS") and/or to pursue other portfolio requirements. The

Standard Offer program has operated in the same fashion, with the reduction in costs attributable to the receipt of REC revenues accruing to lower customer bills also in furtherance of state energy policy.

b. Current Vermont Policies Encourage New Renewable Deployment.

The Report appears to harbor a concern that the absence of a Vermont REC requirement means that the State's practices have not played a significant role in adding new renewable energy to the regional supply mix. GMP disagrees with this assessment, as the company's two largest SPEED qualifying sources – the Granite Reliable and Kingdom Community Wind plants – would likely not have been constructed (at least in the near-term) without the direct financial support of GMP. GMP's ability to support these projects and obtain regulatory approval for them was, in turn, directly facilitated by the framework and goals of the SPEED program. It therefore appears to GMP that the regional supply of renewable resources probably would not have grown as much or as fast in absence of the SPEED program, even though most of the associated RECs are being sold out of state in the near-term.

GMP therefore believes that the Report's draft finding that the SPEED program will provide no incremental protection or promotion of air and water quality through the displacement of polluting fuels is overstated to some material degree. It is likely that at least for the next several years, and perhaps longer, Vermont's SPEED-supported projects will have the effect of increasing the amount of renewable generation in the region, thereby reducing generation from polluting sources. We recognize that it is increasingly difficult to predict the net effects of Vermont's SPEED projects on a long-term basis. In particular, it can be credibly argued that in the presence of state RPS requirements, renewable market prices and forecasts will respond in the long-term to the presence or absence of individual projects, and will ultimately respond to replace them with other projects from within New England or beyond. Nevertheless, GMP also notes that Vermont's SPEED projects – by contributing to the achievement of other states' RPS requirements and presumably moderating the price of doing so – are implicitly increasing the likelihood that those state RPS goals will be achieved in the near term, and maintained over time. In summary, while these impacts can be dynamic and difficult to quantify, GMP believes that it is reasonable to conclude that the SPEED program should be viewed as having some positive impact on the regional renewable supply and therefore on the promotion of air and water quality in the region.

c. Current Vermont Policies Encourage Instate Renewable Projects.

GMP maintains that Vermont renewable policies including the SPEED program are helping the state to foster the deployment of new distributed renewable instate generation. Alternatively, a requirement that utilities simply retire a prescribed total amount of RECs would not be the determinative factor as to whether new renewable distributed resources are developed

in Vermont. As the Board has found through its proceedings to consider the cost for SPEED Standard Offer plants, the cost of power produced by small distributed renewable resources is generally higher than the cost for replacement energy, capacity and RECs that can be purchased within the regional market. However, Vermont renewable policies enable developers to enter into supply agreements at cost-based, rather than market-based, prices. A developer's ability to obtain a long-term contract for the purchase of its project output at these rates is what enables the developer to complete project finance. By addressing the developer's need for a contract, Vermont's SPEED requirements directly aids in the development and commissioning of new distributed renewable resources in Vermont.

In many cases, the amounts paid to support a SPEED Standard Offer project are in excess of the projected market value of the output, even when the value of the REC revenues is returned to customers. As such Vermonters can be viewed as making a larger contribution to support these developments than is provided via REC sales through regional attribute market mechanisms. This can be explained, at least in part, because REC market prices are capped by alternative compliance mechanisms in some states, and because RECs can often be produced at larger facilities with greater economies of scale at lower cost. Hence, the draft Report seems to understate the role that Vermont plays in the development process for smaller instate plants. GMP therefore suggests that the Board consider revising the draft to better reflect that the SPEED program has been effective at encouraging retail electricity providers to enter into affordable, long-term, stably priced renewable energy contracts that mitigate market price fluctuation for Vermonters, and to recognize the important role that Vermont's policies (particularly Standard Offer) have played in creating a market for new renewable energy from small scale distributed resources in the state.[1]

d. Contributing to Reduction in Global Climate Change and Anticipating the Impacts on the State's Economy that Might be Caused by Federal Regulation Designed to Attain these Reductions.

As discussed above, SPEED-enabled sources tend to increase the total supply of renewable generation in the region, although over time that effect is difficult to quantify and probably diminishes. Such additional generation (to the extent it comes from low/zero-emitting sources like wind, solar or hydro) will therefore contribute in some amount toward reduction in climate change.

GMP notes that because most of the SPEED resources are being developed through long-term, stable-priced PPAs or utility-owned plants, their stable prices/costs will serve as hedges against uncertain electric market prices – which could increase substantially if greenhouse gas

[1] While RECs can play a role in the development of Vermont projects, other forces, like tax incentives, siting and permitting challenges, can have a larger impact on Vermont development. It would therefore make sense to consider changes in these policies if the goal is to promote the rapid introduction of new renewables within Vermont.

("GHG") reduction programs such as a strict "cap and trade" regime are implemented in the future. The SPEED resources therefore have the potential to mitigate the impact of such federal regulation on the state's economy. The net effect is uncertain, however, since such GHG reduction regulations would likely increase the market value of energy from the SPEED projects, but could also have the offsetting effect of lowering the market value of the associated RECs.

e. Owned Unit Policies.

GMP notes that there are methods to secure power from renewable resources other than through power purchase arrangements. Both customers and their utilities can develop the resources as a part of their own portfolios. When a customer owns the resource it can participate in a net metering program. When the utility owns the resource it is the traditional supply approach employed by vertically integrated utilities. While a power purchase agreement ("PPA") allows the counterparties to reassign the risks and costs of a purchase, an owned-unit provides for a continuing long-term cost-based resource. When the resource is a long-lived renewable one with low operating and fuel costs, it can be an attractive structure from the customers' perspective. GMP believes that the Board should consider the important role that this type of supply procurement can play for consumers and urge that in any review of Vermont's policies, appropriate consideration be given to establishing comparable incentives and an even playing field to encourage utility renewable resource development. GMP contends that the development of both utility and non-utility renewable generation projects can help to further Vermont's policy goals and that the Board should encourage strategies that are most likely to promote efficient and effective outcomes for consumers.

f. Consumer Disclosure Concerns.

The Board observes in the draft report that the current SPEED program (which allows the state's utilities to sell the RECs associated with SPEED resources, yet is intended to be a program that achieves the state's renewable energy goals under Section 8001), may be incompatible with the FTC guidelines for the use of environmental marketing claims. GMP recognizes that the potential exists for "double counting" of renewable claims under SPEED, and that renewable attribute retirement to Vermont load is a critical aspect of any program that seeks to claim that Vermont's electricity consumption portfolio contains the new renewable power and various attributes (*e.g.*, fuel type, air emission rates) associated with SPEED generation. To avoid direct misrepresentation or double counting, Vermont utilities (including GMP) and other stakeholders (including regulators) should devote ongoing care in characterizing the Vermont electricity portfolio on a retrospective and forward-looking basis, to ensure that attributes associated with SPEED generation are not counted toward the portfolio if the associated RECs are sold.

GMP has not evaluated the indirect risk raised by the Board, associated with the fact that some of the goals articulated in Section 8001 could be argued to implicitly rely on REC

retirement. So long as inappropriate representations of renewable content are not made by the utilities, it is not clear whether the concerns noted by the Board are presented. We note that if the Board has fundamental concerns regarding electricity labeling, it is already empowered to adopt labeling requirements under 30 V.S.A. § 209(f); a requirement that the RECs be retired may not be the only available regulatory response.

g. Developing Viable Markets for Renewable Energy.

The draft Report finds that the current SPEED program is not conducive to developing viable markets for renewable energy because the program allows for the sale of RECs. This conclusion is not clear to GMP.

As discussed above, we recognize that to the extent Vermont utilities sell SPEED RECs out of state, the associated power may not be claimed as renewable in the context of Vermont's power supply. On the other hand, it can be credibly argued that the SPEED program promotes the development of renewable energy markets in the region, by increasing the supply of renewable energy projects that are available to meet RPS requirements in neighboring states. In particular, some neighboring load serving entities are meeting a portion of their RPS requirements through trading – that is, by purchasing RECs generated by Vermont-sponsored renewable projects. In that sense, it appears that the SPEED program is helping the regional markets for renewable energy to develop.

h. Support for Existing Renewable Sources.

In 2011, the Board recommended an RPS that supports existing renewable generation resources to prevent "backsliding." GMP shares this aim as it relates to supporting a generally cost effective category of renewable resources, but it is not clear to us at this time that a firm requirement for this volume of existing renewable power is the best method to ensure this outcome. Our key observations and concerns with respect to the existing renewable requirement are:

- Based on the current state of Vermont utility portfolios in aggregate (which include significant existing renewable and recent additions like the new long-term PPA with HQUS), it appears that relatively little (if anything) beyond the current level of policy guidance is needed to encourage utilities to maintain or add low cost existing resources to the portfolio.
- It does not appear that comprehensive policy assistance is needed to ensure that most existing Vermont renewable sources remain part of Vermont's power supply portfolio. Many of the existing sources are owned by Vermont distribution utilities or are under long-term contract, and it is reasonable to expect that many of the remaining ones (*e.g.*, non-utility hydroelectric plants)

may be economically viable at prevailing wholesale electricity market prices without any additional support or revenue streams or will participate in the already established provisions of the SPEED program. *See* 30 V.S.A. §§ 8005a(p) and 8009. Other smaller existing plants are able to participate in Vermont's net metering program.

- As we understand it, the Board staff's recommendation envisions that the existing renewable requirements could be met by resources across the region. This REC compliance program design may not effectively protect specific in-state renewables, if those resources are not the least-cost ones available in the region, but could serve as a natural competitive push for in-state resources to be developed/managed in the most cost effective way.[2]
- Specific and rigid requirements for Vermont utilities to maintain or add low-cost existing renewable resources in their portfolios would provide leverage to owners of existing renewable plants to seek and obtain higher prices for sales to Vermont-based purchasers. As a result, we believe that firm requirements for existing renewable projects would entail a risk of unnecessary overpayments to renewable generators, both within and outside Vermont.

Based on these observations, GMP suggests that the Board consider whether the existing legislative framework in Vermont is sufficient to support existing renewable electricity sources. If the Board concludes that some additional support is needed, GMP recommends that it consider first the merits of simply providing utilities additional qualitative guidance with respect to the maintenance and acquisition of existing renewable power sources.

i. RPS Costs.

GMP notes that a decision to implement an RPS will of necessity require that retail electric providers acquire and retire RECs to satisfy compliance standards. Since utilities are not currently under such a requirement, the result will be an increase in the cost of service for a utility, all else equal. A decision to develop such an obligation will require serious weighing of the costs and benefits believed to arise through the action. These costs will be in addition to the incentives already built into current renewable energy programs.

As the Board and the legislature consider potential RPS requirements, GMP notes that its portfolio (and those of other Vermont utilities) already contains substantial long-term power supply sources that feature low carbon and air emissions sources, significant price stability, and technology and fuel diversity delivered through vertically-integrated electric utilities. These are

[2] However an explicit decision to favor in-state producers over out of state producers may run afoul of the requirements of the Commerce Clause that gives Congress broad authority to regulate commerce between and among the states and has traditionally been viewed as bar to state protections legislation. *E.g., Hunt v. Washington State Apple Adv. Comm.*, 432 U.S. 333 (1977).

many of the attributes that RPS requirements target. From a portfolio perspective, therefore, the need for an RPS appears to be much less acute in Vermont than in the neighboring states.

Finally, it is important to recognize that the cost and rate impacts of a requirement of this magnitude are very uncertain and could be large – particularly if high-cost outcomes (*e.g.*, if the supply of new renewables turns out relatively low, and/or the cost of new renewable turns out relatively high) occur. Evaluations of RPS costs can become stale (this is probably the case for the wholesale power market price assumptions used in the Board's 2011 RPS report), so we recommend that they be periodically revisited.

j. Reduction of the Overall Cost of Meeting the Public's Need for Energy.

The draft Report notes that a benefit of increased penetration of renewable generation which may at times reduce the overall cost of meeting the public's need for energy is the volatility associated with wholesale market prices for fuel-based generation is avoided. GMP agrees that renewables can be utilized to avoid volatile market prices driven by fossil fuel plants. We also note that in many cases, these market prices which reflect fossil fuel price trends also drive the prices at which existing renewables can be purchased. GMP offers two refinements to this assessment.

First, the value of additional price stability depends in part on the portfolio into which it is being added (*e.g.*, what % of a Vermont DU's portfolio is exposed to market prices in the future, and the duration of stable-priced sources that are already committed). For example, when added to a utility portfolio that features heavy commitment to long-term and stable-priced sources, additional stable-priced sources may have little (or even negative) value for customers – since the resulting portfolio would be largely unresponsive to wholesale market price changes, making the utility's cost-based rates vulnerable to becoming "disconnected" from the rates of neighboring utilities and states if future market prices turn out relatively low. In Vermont, where a significant portion of the electric supply portfolio is committed to stable-priced and long-term sources, this potential dynamic will warrant consideration as additional new renewable supplies are evaluated.

Second, the price stability that Vermont obtains under the SPEED program will be limited to some degree – particularly in the long-term – by the fact that Vermont utilities are selling the associated RECs at market-based prices. When supply/demand changes in the neighboring RPS markets (including those driven by changes in the renewable policies of those states) change, the market prices for RECs (and therefore the revenues available to Vermont utilities) change. Essentially, Vermont customers will tend to benefit if regional REC market prices turn out relatively high, and Vermont rates will tend to increase if regional REC market prices decline. This price risk can be managed to some degree through a program of forward REC sales, but such a program is challenging to implement in the long-term for several reasons, including the fact that the REC market is relatively illiquid. Vermont utilities may also be

reluctant to sell RECs on a long-term basis, because they know that Vermont policy could evolve in the future to an RPS structure that requires them to retire certain REC volumes.

k. Multiplier for Non-Transmission Alternative ("NTA") Benefits.

The draft Report indicates that in the event that the Legislature adopts an RPS, the Board recommends that projects have the opportunity to demonstrate that they are part of a preferred NTA solution to an identified transmission or distribution constraint and, if so, that they would receive a known, predetermined RPS multiplier. GMP is not clear on what the goals and implementation details of this approach would be, and is open to learning more. It is not immediately clear, however, that such a multiplier would be productive policy for Vermont. We observe that quantification of NTA benefits can be notoriously difficult, and that such benefits can be very location-specific. This raises the possibility that it would be difficult to achieve consensus as to what the appropriate adder should be. It seems certain that an NTA multiplier would increase the administrative complexity of the RPS program.[3]

It is also not clear to GMP that such a multiplier is needed. Vermont utilities are already expected to weigh NTA benefits in their integrated planning efforts; this presumably includes the selection of types and locations of renewable sources. In addition, there are processes (*e.g.*, VSPC, Docket No. 7081 framework) designed to identify opportunities for NTA resources. Further, if an RPS multiplier (*e.g.*, award more than one REC per MWh for projects that provide an NTA benefit for a renewable energy plant that offers some NTA benefits) would increase the effective price paid to renewables that can serve as NTA resources, it is not clear why this is appropriate. If such plants can be procured effectively (via PPAs and/or utility ownership) at prices that reflect the underlying cost of construction and operation, why pay more?

l. Consistency with Least-Cost Planning.

GMP believes that it is important for the Board to explain that flexibility is needed to allow utilities to try and develop least-cost strategies to meet their customers' needs as required under 30 V.S.A. § 218c. Renewable portfolio requirements, the SPEED program, other planning requirements can all be viewed as constraints on the optimization of utility least cost supply plans. That does not mean that all such requirements are unjustified, but does mean that policy makers should try to identify and consider both the direct and indirect consequences of their various recommendations.

Throughout Vermont's energy policies, the role for least-cost planning has been cemented to guide decision making affecting utility matters. GMP supports and encourages the acquisition of and reliance on renewable energy. But GMP urges that the Board affirm the need

[3] Additionally, GMP is not aware whether "multiplier" RECs would have any greater value in another jurisdiction.

to take least-cost planning considerations into account when forming renewable policies. Otherwise we risk establishing requirements that do not advance Vermont policy goals as effectively as they could while asking customer to incur higher than otherwise necessary costs.

GMP looks forward to working with the Board and stakeholders in the development of Vermont's energy policies. We hope that the insights from our comments can inform this process and help Vermont to establish sound policies in the field of renewable energy. Should you have questions concerning this submission, please do not hesitate to contact me.

Respectfully submitted,

/s/

Douglas C. Smith
Director, Power Supply

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December 20, 2012

Ms. Susan M. Hudson, Clerk
Vermont Public Service Board
People's United Bank Building, Fourth Floor
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Montpelier, Vermont 05620

Re: Further Analysis and Report on Renewable Energy Requirements
Supplemental Comments and Responses to Workshop Comments

Dear Ms. Hudson:

Green Mountain Power Corporation ("GMP") submits these supplemental comments on the Public Service Board's (the "Board") draft *Further Analysis and Report on Renewable Energy Requirements* (the "Report") prepared pursuant to the requirements of Act 170. Also included are responses to question raised at the workshop convened by the Board on December 11, 2012. This filing supplements GMP's preliminary comments of December 7, 2012,

Supplemental Comments

As noted in our preliminary comments, GMP does not believe a Renewable Portfolio Standard ("RPS") is necessary for Vermont at this time. GMP disagrees with the draft Report's finding that "the current SPEED program is not conducive to developing viable markets for renewable energy because the program allows for the sale of RECs." The SPEED program has effectively stimulated the development of new renewable supply through utility ownership and long-term power purchase agreements ("PPAs") for the output -- energy, RECs and capacity -- of renewable energy projects in the region. There is currently a limited number of entities in the region willing and able to sign long-term PPAs with new renewable projects (which is often a requirement for these projects to obtain financing) or to build such projects themselves. Vermont entities are able to fill some of the demand for these long-term commitments, and thus facilitate these projects (such as Kingdom Community Wind in Vermont, and Granite Reliable in New Hampshire) being built. At least in the short term, and perhaps in the long-term, these projects have the effect of increasing the regional supply of new renewables.

While GMP appreciates the reasoning behind why "the Board recommends that an RPS in which RECs are retired … is the appropriate policy for promoting renewable energy in the state", GMP suggests that the Board also acknowledge the costs associated with such a policy recommendation. It is not practical to conduct a comprehensive study on the costs of an RPS as was done last year, but it is important to note that implementation of an RPS would have significant cost implications for Vermont electric customers. This will particularly be true if prevailing regional REC market prices remain at recent levels (from $50/MWh to $60/MWh for deliveries in 2012-2013) which we understand are much higher than those assumed in Vermont's 2011 RPS study.

Flexibility in Requirements for Different Categories and Maintaining Baseload Generation

GMP believes that the Board's recommendation should allow utilities flexibility to develop least-cost strategies to meet their customers' needs. Toward that end we note that to achieve some objectives in the types of renewables sought (*e.g*., diversity among categories of renewables, baseload versus generation), it may be effective for Vermont policymakers to express them in terms of guidelines or goals that should be taken into account in Vermont's electricity planning, as opposed to hard requirements (*e.g*., X% or Y MW of a certain type of resource must be in place by year Z) which may be more costly.

GMP supports the Board's recommendation that if an RPS is adopted, that it not require allocation among different categories of renewable energy technologies. Guidance (as opposed to hard requirements) can, for example, be offered to give preference to ownership versus PPAs, technology types, fuel types, or location. If diversification among categories is recommended, allowing utilities some flexibility is a meaningful element that will help to maintain competition among projects, which should in turn keep costs down. For example, the use of guidance would avoid outcomes in which Vermont utilities are required to purchase a certain type of renewable power at a point in time when there are few (or perhaps only one) suppliers capable of providing that power.

Similarly, GMP does not believe it is necessary for an RPS to require that a baseline level of renewable resources, regardless of the vintage, be maintained. We feel that guidelines would be sufficient in order for utilities to maintain a baseline level of renewables, and would enable utilities to balance the relative value and cost of baseload power versus intermittent power in their planning and procurement activities. We also note that if existing renewable plants are required to provide a specific part of the energy portfolio, these projects will likely have the opportunity to demand a premium price, which may or may not be required for the economics of the project. That is, owners of existing projects may gain the upper hand in setting prices, to the disadvantage of Vermont utilities and their customers. As with the categories, we believe that flexibility is an important component that will help keep costs down.

Price Suppression

GMP recognizes that the addition of new supply (including renewables) can lower wholesale market prices in Vermont and the region, however we caution the Board against putting undue emphasis on the potential price suppression associated with an RPS. While lower wholesale prices have coincided with the implementation of an RPS in several states, there are many other factors at play in determining the price of electricity, making it difficult to attribute the price decreases to the RPS. When estimating the price impacts of long-lived assets like renewable projects, it also tends to be difficult to estimate how the power system would have evolved (*e.g.*, what power plants would have been built or retired) in the absence of the subject projects.

In summary, GMP does not recommend an RPS for Vermont at this time. If an RPS is adopted, GMP supports most of the fundamental principles recommended by the Board, and stresses the importance of allowing flexibility in achieving the goals for the initiative.

Response to Workshop Questions

Q. Are representations made by a Vermont utility in print or on a web site considered marketing under the FTC Guidelines?

The FTC Guidelines "set forth the Federal Trade Commission's current views about environmental claims" and "consist of general principles, specific guidance on the use of particular environmental claims, and examples." 16 C.F.R. Parts 260.1(a) and (c). The guidelines:

> …do not confer any rights on any person and do not operate to bind the FTC or the public. The Commission, however, can take action under the FTC Act if a marketer makes an environmental claim inconsistent with the guides. In any such enforcement action, the Commission must prove that the challenged act or practice is unfair or deceptive in violation of Section 5 of the FTC Act.

See Part 260.1(a). Whether a particular claim is deceptive will depend "on the net impression of the advertisement, label, or other promotional material at issue." *See* Part 260.1(d).

Section 5 of the FTC Act prohibits deceptive acts and practices in or affecting commerce. A representation, omission, or practice is deceptive if it is likely to mislead consumers acting reasonably under the circumstances and is material to consumers' decisions. *See* Part 260.2. With respect to renewable energy claims, the guidelines state:

> If a marketer generates renewable electricity but sells renewable energy certificates for all of that electricity, it would be deceptive for the marketer to represent, directly or by implication, that it uses renewable energy.

See Part 260.15(d).

In Vermont, utilities provide a regulated service to customers at prices set by the Public Service Board within specified monopoly service areas subject to a comprehensive regulatory scheme. In this way, utilities do not generally "market" their services and the information provided does not generally affect consumers' decision-making in the way that marketing communications do in more competitive markets. Rather, companies provide education on the activities of the utility and on the terms and conditions of the services that the customer may avail itself to under the company's regulated tariff offerings. While there are aspects of the communications that may be considered by a consumer when it determines what service to select, the structure of the interaction is different from a traditional marketing encounter, and the purpose of the utility's provision of the information is different.

While the FTC guidelines do not provide a specific definition of a "marketing" claim, Part 260.1(c) states:

> These guides apply to claims about the environmental attributes of a product, package, or service in connection with the marketing, offering for sale, or sale of such item or service to individuals. These guides also apply to business-to-business transactions. The guides apply to environmental claims in labeling, advertising, promotional materials, and all other forms of marketing in any medium, whether asserted directly or by implication, through words, symbols, logos, depictions, product brand names, or any other means.

Id. GMP's view is that utility consumer information materials do not directly fit within the scope of the FTC guidelines. Nonetheless, the FTC guidelines are useful guides that can inform the drafting and review of such materials.

Q. Are the FTC guideline (16 CFR Part 250.15(d)) applicable to Vermont retail electricity providers?

As described above, the FTC guidelines do not appear to directly address the circumstances affecting the provision of customer information by a regulated utility. Nonetheless, the guidelines provide useful insight to aid parties to develop customer communications that can be reasonably interpreted and are not deception or misleading. In this regard the guidelines are like other green marketing guides and advice memorandum.

Section 250.15(d) of the guidelines explains that if a marketer generates renewable electricity but sells the associated renewable energy certificates, "it would be deceptive for the marketer to represent, directly or by implication, that it uses renewable energy." GMP agrees. But this is fundamentally different from explaining that the utility purchases all of the attributes when it enters into supply arrangements, that it generates or purchases renewable energy, that the power it resells was purchased from various vendors, or that it markets renewable energy or energy attributes. In each of these cases, the context of the statement is important and must be considered when assessing the reasonableness of the subject communication.

For example, a utility's statements about its voluntary renewable pricing program would be closer to a marketing claim than would be the case with other communications or reporting. Similarly, the representations made in connection with the sale of power into competitive wholesale markets may come closer to being marketing claims than a recitation of tariff terms or alternatives. Items such as integrated resource plans, consumer education materials, annual reports and regulatory compliance submissions would seem to be substantially different, especially in cases where a utility accurately describes a state initiative or program affecting power supply like the SPEED program.

If the Board is concerned about the nature and basis of utility consumer education statements, it can review the same by exercising its authority conferred under 30 V.S.A. § 209. It need not rely on the FTC to act. And as discussed above, the guidelines are guides and do not create specific rights or responsibilities for users.

Thank you for this opportunity to comment. If you have any questions or concerns, please let me know.

Respectfully submitted,

/s/

Douglas C. Smith
Director, Power Supply

cc: Electronic Service List

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December 20, 2012

Susan Hudson, Clerk
Vermont Public Service Board
112 State St. Drawer 20
Montpelier, VT 05620-2701

Subject: Act 170 Renewable Portfolio Standard Report

Ms. Hudson:

In response to the Vermont Public Service Board ("Board") memorandum of November 27, 2012, RENEW submits these comments on the draft "Further Analysis and Report on Renewable Energy Requirements" ("Report") prepared pursuant to Section 7 of Public Act 170.

RENEW's comments address the following Board recommendations and observations about a Renewable Portfolio Standard ("RPS") for Vermont:

1. An RPS will promote renewable energy within the state and displace electric power generators known to emit or discharge pollutants (Report at Page 8).

The Board observes how the ability of a Vermont utility to export its RECs to other states provides no incremental pressure on less efficient, polluting, fossil fueled generators in the state and region to retire. RENEW agrees. Vermont's adoption of an RPS will also enable the region to displace these traditional generators in a cost effective fashion by allowing for the most efficient operation of regional coordinated renewable energy procurement by the New England states, which is now being developed pursuant to the resolution of the New England governors at their annual meeting earlier this year in Burlington. One of the primary benefits for the region under coordinated procurement is the assurance the states' collective renewable energy goals will be met using cost effective resources developed within the region.

According to the Work Plan developed by the New England States Committee on Electricity ("NESCOE") to implement coordinated procurement, land-based and offshore wind

resources will be largely responsible for meeting the region's renewable energy goals and, in the years ahead, transmission upgrades will be needed to make larger quantities of wind energy deliverable. Regional procurement can allow the region to develop the most cost effective renewable energy resources some of which will be sited in Vermont. For those projects, Vermont can retain some REC to satisfy local needs, as the Board recommends, and export the remaining to the other New England states which will green the region's generation fleet. Even if RECs produced from Vermont resources are sold outside the state, Vermont still benefits. Local economic development will accrue from in-state projects. The addition of renewable resources interconnected to New England's power system provide Vermonters with cleaner air[1] and lower wholesale electricity prices[2] regardless of where the RECs are sold.

2. Energy efficiency should not be a part of the RPS (Report at Page 7).

No state has implemented a policy that would foster direct competition between renewable energy technologies and energy efficiency. The two are complementary approaches to necessary resources - one addresses demand and the other supply - and therefore have been kept distinct in state RPS categories. While the Board recognizes the dangers of energy efficiency as part of an RPS, it can be done effectively provided, as is done in other states, goals for energy efficiency are in a category separate from renewable energy.

Counting energy efficiency in the same category as a renewable resource depresses the value and incentive created by RECs that make it easier to finance renewable generation projects. Because energy efficiency investment has a lower cost structure than generation, providing access to higher REC prices than is available in a separate energy efficiency category will tend to overcompensate energy efficiency in comparison to new renewable resources. The most effective and proven tools for advancing energy efficiency are direct public and private investment in those resources.

By setting an RPS requirement for a renewable energy that is a percentage of load, increased deployment of energy efficiency will facilitate Vermont's renewable energy goals in an economically efficient manner: by lowering demand – and thus a corresponding reduction in new renewable capacity to meet RPS targets. Forcing energy efficiency and renewable resources to compete for RECs, however, will undercut the goal to increase the use of clean energy and technologies to support and grow the state's clean energy economy, while failing to replace fossil fuel generators with clean resources.

[1] The New England Wind Integration Study prepared for ISO New England in December 2010 assessed the effects of large-scale wind penetration in New England. It shows that greater amounts of wind penetration in our region correspond to substantial reductions in these harmful air emissions which know no state boundaries.

[2] The Report acknowledges the price suppression benefits or renewable energy. (Page 18) The lack of fuel inputs allows them to be price takers in our regional electricity market. By bidding zero in the real time market, renewable resources make it unnecessary to dispatch more expensive resources with higher operational and fuel costs.

3. An RPS that allows eligibility for a large number of technologies without regard to their size or geographic location will be more cost-effective (Report at Pages 10-11).

Although a focus on small projects would encourage more competition and likely result in lower prices for the segment of small renewable resources, the more significant cost advantage will come by coordinating procurement with other states for larger and more efficient wind resources available in New England. Large scale wind and transmission projects are capital intensive. Due to economies of scale it may be much more cost-effective to build a higher-voltage, higher capacity transmission line to deliver large volumes of wind power than undertake small scale expansions here and there.

RENEW recognizes the positive attributes of small-scale resources sited locally across the region including increased reliability, savings from being able to defer local distribution system investments, demand response participation and local economic development. Coordinated procurement of large scale resources could include and be undertaken in parallel with other programs, such as the standard-offer and net metering programs, which encourage development of smaller resources, provided the procurement of small resources does not prevent the states from capturing the cost savings from more efficient large scale wind projects.

4. Resource eligibility definitions should be as similar as possible to those in the other states to make markets more robust and lower procurement costs (Report at Page 12).

Having Vermont join the other New England states with an RPS will allow, under regional coordinated procurement, greater standardization of the contracts and cost recovery methodology to the greatest extent possible to minimize contractual conflicts and possible risks that can interfere with developers meeting project finance requirements.

5. The legislature should give consideration to adopting an RPS design using a central procurement program like the neighboring NYSERDA program (Report at Page 21).

While the NYSERDA program has been successful at fostering cost effective renewable generation in New York, buying only RECs prevents a state from getting the full benefit of renewable energy. Only renewable resources with their "free" fuel can provide an effective long term hedge against electricity price swings caused by the volatility in natural gas and other fossil fuel markets. An energy and REC procurement program can provide an effective hedging benefit for consumers.

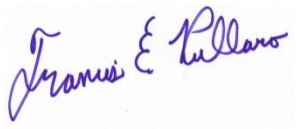
Whether with a REC only procurement scheme or a REC and energy one, the key ingredient for the success of a procurement program is providing developers with the long term commitment from a creditworthy counterparty, such as the distribution utility, for their products including energy and/or RECs. Today, renewable energy and even most traditional new generation are very difficult to finance without a long term contract due to the risks of relying on short term energy markets to recover a project's long term capital investment. Long-term contracts also help lower the development cost of renewable energy by giving developers and

their investors the confidence to commit their capital. Otherwise, developers and investors must make a higher risk investment and correspondingly demand a higher rate of return reflected in higher financing charges and other risk-related considerations. Long term contracts will also lower the cost of capital since most companies will use a risk-rated return. With less risk from long term contracts, developers will accept a lower return. The arising lower cost will ultimately be passed onto consumers.

The region will benefit when all six states cooperate on contracting for renewable resource development and supporting transmission upgrades to support those resources. If even one state refuses to participate it seems likely other states interested in regional cooperation will sit out refusing to pay for another state's share of the benefits. If that should happen the states will continue to implement their policies in silos. The entire region will face higher costs to meet its renewable energy and environmental goals and miss economic development opportunities.

Thank you for the opportunity to comment on the Report. RENEW expresses its hope that the Board will continue to support the long term vision of an RPS for Vermont.

Sincerely,



Francis Pullaro
Executive Director

December 7, 2012

Susan Hudson

Clerk, Public Service Board

112 State Street, Drawer 20

Montpelier, VT 05602

RE: Act 170 Renewable Portfolio Standard Report

Dear Ms. Hudson,

Renewable Energy Vermont (REV) thanks the Public Service Board for the opportunity to provide comments regarding the Act 170 Renewable Portfolio Standard (RPS) Report.

REV concurs with the Boards findings that the current standard-offer and net-metering programs "appear to be appropriate policy options for supporting the development of renewable energy generation projects and related planned energy industries in Vermont", and to maintain a baseline level of renewable resources, regardless of the vintage of those resources.

While REV supports Renewable Portfolio mandates, REV has concerns with regards to which tools are utilized to ensure renewables deployment. Italy has recently abandoned their RPS in favor of a Feed-In-Tariff, as this mechanism, as opposed to renewable credits or certificates, has led to considerably more development of renewables internationally. Similarly, Germany recently released a report highlighting that although quota-programs, such as the Renewable Energy Certificate tool often utilized in RPS programs in the United States, are purported to achieve a lower cost for renewables, that this is not in fact the case (http://www.unendlich-viel-energie.de/uploads/media/RenewsKompakt_Support-schemes_jun12.pdf).

For example, the agency, the Agentur für Erneuerbare Energien, states that RPS-related tendering programs raise the payments for wind energy in Europe to as much as €0.15/kWh ($0.19/kWh) in Italy. In contrast, Germany, which uses a feed-in tariff, pays only €0.089/kWh ($0.11/kWh). Spain, which also uses a feed-in tariff, pays even less.

REV continues to support state mandates that focus on a full portfolio of multiple technologies of various vintages, while maintaining preference for policy tools such as net-metering and the Standard Offer program, as these have shown significant deployment of renewables, and as described above, have shown a lower cost to ratepayers.

Thank you for the opportunity to comment.

Sincerely,

Gabrielle Stebbins

Executive Director

VERMONT ELECTRIC COOPERATIVE

Comments on PSB Staff Draft Analysis and Report in response to the requirements of Act 170

December 7, 2012

Vermont Electric Cooperative (VEC) submits the following comments on the PSB Staff draft analysis, in preparation for the December 11, 2012, workshop on this matter.

As an initial matter, VEC reiterates that a Renewable Portfolio Standard (RPS) should not be re-established or implemented in Vermont. The SPEED program is doing what the Legislature intended, and will continue to do so through 2017 and beyond. VEC expects to meet our obligations by adhering to the directives of the Legislature as implemented by the Board.

Experience across the country is confirming that the electric grid does not function effectively without significant investments in the distribution and transmission system once intermittent renewable energy exceeds 20-25%, which is where Vermont will be with SPEED. Vermont already leads the region and the nation in having a Standard Offer. REC prices in New England are currently relatively high, indicating that current policies are supporting the development of renewables, and thereby reducing the region's impact on global climate change. In light of technological, market, financial, and regulatory uncertainty in the renewable energy industry, VEC opposes additional burdens on electric ratepayers that undermine all that is already working in Vermont. Instead, we support and encourage efforts to address the critically important needs to reduce emissions and our reliance on fossil fuels by directing all efforts to the predominant causers of the problem – transportation and heating, which represent 79% of Vermont's carbon footprint – rather than expecting 4% of the problem to contribute any more than is possible to the solution.

If Vermont chooses to adopt an RPS nonetheless, VEC urges the PSB to recommend that it begin no sooner than 2017, so that Vermont (ratepayers, citizens, ridgelines) will not have implemented SPEED in vain. Additionally, Vermont's significant investments and measurable achievements in efficiency should be recognized in any RPS.

The Board Staff's recommendations which we comment on are reproduced in italics, with VEC's comments below:

"If the Legislature seeks to retain and support additional existing renewable energy infrastructure, the Board reiterates its recommendation from the 2011 report that one guiding principle of an RPS program should be to maintain a baseline level of renewable resources, regardless of the vintage of those resources. This could be achieved through either the upkeep

and/or re-powering of existing facilities, or the purchase and retirement of a similar quantity of RECs on the market."

VEC does not support any such "existing renewable requirement" because there is no viable market for RECs that would be equivalent to, for example, Hydro Quebec system power. Accordingly, utilities' whose HQ contracts expire would be disproportionately harmed; they would face a choice between purchasing "existing" power from an HQ with artificially-increased market power, or purchasing expensive RECs for new renewables. However, if such an "anti-backsliding" mechanism (beyond the goals already set) is sought by the Legislature, it should be on a state-wide basis only, given the current and future inequities in access to, and prices paid for, renewable energy of this class.

"The Board recommends that an RPS in which RECs are retired, rather than resold as allowed under the current SPEED program, is the appropriate policy for promoting renewable energy in the state."

VEC believes that this recommendation does not support the goals of Section 8001(a)(3). Instead, SPEED has allowed the state's utilities to enter into the affordable, long-term, stably priced contracts the Legislature seeks. A Vermont RPS would only serve to raise the costs for renewable contracts, and would most likely destabilize prices over the long term, given the vagaries of the REC markets.

Consistent with the FTC guidelines described below, and with the renewable energy practices common in every other state that has a renewable energy requirement, the Board finds that the current SPEED program is not conducive to developing viable markets for renewable energy because the program allows for the sale of RECs. Rather, the Board recommends that an RPS in which RECs are retired is the appropriate policy option for this goal.

VEC contends that with a plain reading of Section 8001(a)(4), the goal of "developing viable markets for renewable energy and energy efficiency projects" is clearly already met. There are viable and robust markets in Vermont and throughout the region.

VEC suggests that the Board's concerns about deceptive claims regarding SPEED projects whose RECs are sold are baseless, because the Vermont Legislature (wisely) did not allow for retail choice in Vermont. Therefore, Vermont utilities do not "sell" various electricity offerings based upon their underlying power supply (except for the case of Board-approved voluntary renewable pricing programs – for which all claims of attribute ownership are subject to PSB scrutiny, as well as FTC oversight). The National Association of Attorneys General has also published informative work on this topic.

If the Board has concerns that a Vermont utility inappropriately "advertises that it owns, hosts, or produced renewable energy," that utility alone should be subject to appropriate sanctions from the PSB, the FTC, the courts, or other regulatory bodies. It would be grossly disproportionate to establish an RPS with REC retirement on all Vermont utilities

as a response to speculative and unsubstantiated fears of possible deceptive advertising of products that don't exist.

"A Vermont RPS in which RECs are retired, rather than resold, will also displace electricity generation in the state and region that utilizes fuels known to emit or discharge pollutants. The Board recommends that the current SPEED program, which does not require the retirement of RECs, is not an appropriate policy option for advancing this goal."

VEC disagrees with the underlying premise of the Board's statement. If Vermont establishes an RPS, and Vermont utilities buy and retire RECs to meet their obligation, no pollutant-emitting generation is displaced in the state or the region. Instead, the price of RECs will just be higher than it would otherwise be.

The goals articulated in Section 8001(a)(5) are conflicting in several respects. If the goal is read as an "and" function – protecting and promoting air and water quality in the state and region – the projects that will not advance that goal are limitless. SPEED projects may indeed advance these goals in the state, while it is not ascertainable whether retiring the RECs associated with those projects will have any effect whatsoever on air and water quality elsewhere in the region. The Board's conclusion seems to assume that if SPEED-associated RECs are retired, there will be an equivalent amount of additional renewable projects built (in Vermont or elsewhere in the region), and immediately at that. But siting constraints, alternative compliance mechanisms, developer funding challenges, and REC market uncertainty all make it less likely that retiring SPEED-associated RECs will have that "desired" effect. What is certain is that retiring those RECs will increase electric rates in Vermont.

In light of these conflicts and uncertainty, VEC agrees that the best way to meet the Section 8001(a)(5) is with the Board's recommended option that efficiency is an apt policy for meeting pursuing this goal.

VERMONT ENERGY
INVESTMENT CORPORATION

December 28, 2012

Ms. Susan Hudson, Clerk
Vermont Public Service Board
112 State Street
Montpelier, VT 05620-2701

Re: Comments on Draft "Further Analysis and Report on Renewable Energy Requirements"

Dear Ms. Hudson:

Vermont Energy Investment Corporation (VEIC) appreciates the opportunity to respond to the Public Service Board's Draft *Further Analysis and Report on Renewable Energy Requirements* ("Report") issued on November 27, 2012, and thanks Board staff for granting VEIC additional time to respond due to its late receipt of the draft document.

VEIC acknowledges the thought and effort that the Public Service Board ("PSB," "the Board") and the Commissioner of the Department of Public Service ("DPS") have put into this document and its predecessor, the October 3, 2011 Board report to the Legislature, entitled *Study on Renewable Electricity Requirements*, pursuant to Public Act 159, Section 13a.

VEIC has reviewed both documents and offers the following comments:

VEIC observes that the next steps to be taken in regard to the legislature adopting an RPS and/or adopting an adjustment of Vermont's current SPEED program and Vermont's other renewable energy strategies should be informed by the study on a "Total Energy Standard" that the Department of Public Service is currently undertaking under legislative mandate. VEIC believes this process may create a context for viewing the role of renewable energy development that includes all forms of energy production and use in the state and region.[1] VEIC looks forward to providing informal and ongoing support to that process, and anticipates that renewable energy strategies, both electric and thermal, will be an important part of this wide-ranging analysis and discussion.

[1] The need for this broader context is illustrated by the discussion below on biomass energy. VEIC believes that Vermont's (and the region's) biomass energy resources may more effectively be used to displace delivered fossil fuels in thermal applications than in the large-scale generation of electricity, but neither the SPEED program nor any RPS proposed by the Board includes treatment or inclusion of thermal renewable strategies.

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Assessment of the SPEED Program

The Board begins by summarizing its conclusions from the 2011 report. Its first conclusion is that *"…the SPEED program does not support protecting and promoting air and water quality in the state through the displacement of fuels which are known to emit or discharge pollutants and does not contribute to reductions in global climate change."*

This assertion appears to reflect the Board's frequently stated concern that the SPEED program risks the inappropriate "double-counting" of renewable energy attributes that, under the SPEED program, can be sold, and therefore stripped from the original renewable generation. VEIC agrees that there are significant issues with the SPEED program, but is not persuaded that the October 3, 2011 report conclusion articulated above is based on solid evidence.

VEIC believes that the issues with the SPEED program include the following:

1. The risk of "double-counting" and misrepresentation to consumers that the power generated from a source that has had the renewable energy credits ("RECs") sold off is "clean" or "renewable". VEIC believes that a clear, concise, definition of "SPEED resource" should be established and that the term "SPEED resources" be used consistently by Vermont regulators and utilities to identify all such resources as "non-renewable".
2. The portfolios of Vermont utilities do include less environmentally beneficial resources because under SPEED, the RECs from some of their generation portfolio are likely to have been sold rather than retired.
3. Vermont is not fully participating in a regional market as a generator of RECs that are "retired" and is thus gaining funding through the sale of RECs in other states. This funding is being used to keep Vermont rates low. It can and has been argued that this does not help create a strong and consistent regional market for RECs.
4. The risk that this Vermont approach may actually lead to adverse action by other states or regulators that restricts the ability of Vermont-owned RECs to be sold in other jurisdictions. (VEIC has not conducted an independent assessment of the likelihood of this possibility.)
5. The argument could be made that Vermont's attainment of lower rates through the sale of RECs creates an expectation in Vermont that somehow renewable energy costs are lower than the real costs of their production.[2]

It may well be appropriate for Vermont to participate in a regional RPS market as both a provider and "taker" of RECs by having an RPS that retires the RECs created under the program.

[2] Of course this argument can be made about many subsidies that are embedded in electricity prices and fuel costs generally, and can apply to "costs" that are externalized from energy prices as well.

However, the proposition that SPEED resources do not "…*support protecting and promoting air and water quality in the state through the displacement of fuels which are known to emit or discharge pollutants and does not contribute to reductions in global climate change"* does not appear to be supported by evidence.[3]

The assertion seems to be based on the assumption that since RECs from Vermont-owned resources are being sold to meet renewable portfolio standard (RPS) requirements in other jurisdictions, they do not contribute to reducing harmful emissions. The reasoning behind this assumption appears to be that if Vermont RECs were not available outside Vermont, other renewable energy (RE) projects would have been built to attain compliance, therefore Vermont projects do not actually add to the number of RE projects being built. VEIC has not seen evidence to support this conclusion. VEIC is aware that utilities in other states in the region are actually making alternative compliance payments (ACP) either because: (1) they have not acquired sufficient RECs through development or purchase of RE resources with RECs or; (2) because the price of RECs is above the level of the ACP. This does not appear to support the conclusion that Vermont-based RECs are affecting the market in a manner that displaces other RE generation projects.

The positive attributes of SPEED, some of them recognized in the Board's "Analysis and Report", are:

1. The evidence seems to be that SPEED has helped get projects built in Vermont with the (albeit REC-stripped) energy contractually delivered to Vermont customers. Clearly Vermonters cannot claim that those projects themselves have retained their RE attributes, but on the other hand the projects themselves are not actually contributing to the generation of air or water pollutants in Vermont. Would those projects have been built without SPEED? If projects had been built would they have been, for instance, gas turbines? VEIC is not sure how to answer hypothetical questions of this sort.
2. It is reasonable to expect that the projects have economic, job-creation, and capacity-building effects within the state. VEIC has not conducted an analysis of the scale of such effects. The projects have also created a significant level of controversy in some instances, but these debates do not appear to turn on whether or not the RECs are retired in Vermont.

[3] The Board reasserts this argument on page 8, final sentence, and includes there the assertion that there is "no incremental protection or promotion of air and water quality in the state *or region* through the displacement of polluting fuels." (italics added) This assertion could be applied to any project that sells its RECs…and therefore tends to argue against what VEIC understands to be one of the intended purposes of an RPS. If that purpose is to create a value for attributes that the market has previously ignored, then finding a means to realize that value should have the effect of *promoting* RE projects that otherwise might not have been built.

3. SPEED has provided Vermont Electric Utilities with a valuable directive and incentive for them to develop and own, on behalf of ratepayers, SPEED energy projects in the state.[4] While VEIC has not conducted an analysis of the costs and benefits of that ownership, it is at least possible that the utility development of SPEED projects provides a stable ownership model with predictable benefits both to Vermont consumers and utilities.
4. Vermont ratepayers have benefitted in the form of rates lower than they otherwise would have been for these projects. VEIC has not calculated and is not aware of a calculation of what the annual savings to ratepayers has been, is currently, or is projected to be, from the sale of RECs. Such an analysis will be a critically important contribution to the ongoing discussion about SPEED and a potential transition to an RPS in Vermont.[5] In this regard Vermont, through SPEED, is more like a private developer of RE projects that sells RECS from projects as part of an overall strategy to finance the project.
5. To the extent Vermont SPEED projects sell RECs into the regional market, those sales may have the effect of driving down the market price of RECs to consumers in other jurisdictions, one of the stated goals of creating a regional market. VEIC has conducted no analysis to determine the reality or extent of this effect, though as noted above, such an effect seems not to have been large, but such information would contribute to the discussion.

Biomass Energy

VEIC has recently become the successor organization to the Biomass Energy Resource Center (BERC). This new role for VEIC has added capacity to VEIC's already strong knowledge base in biomass renewable energy. VEIC offers the following comments on the Report as it might affect biomass renewable energy in Vermont:

1. On page five the Report states: *"If the Legislature seeks to retain and support additional existing renewable energy infrastructure, the Board reiterates its recommendation from the 2011 report that one guiding principle of an RPS program should be to maintain a baseline level of renewable resources, regardless of the vintage of those resources."* VEIC assumes this statement applies in part to the two utility scale biomass plants, McNeil and Ryegate, as well as to old hydro-electric plants. VEIC supports developing an RPS program that allows existing biomass plants to continue operating given they can do so safely and reliably. While VEIC is concerned that building additional stand-alone biomass electric plants may be problematic, supporting the ones we have makes sense.
2. On page ten, the Board discusses the pros and cons of requiring a diversity of technologies in an RPS program and states that RPS compliance costs can be minimized when market forces dictate the size and technology. VEIC does not believe that minimizing compliance costs through market forces is the only goal and best strategy in

[4] Vermont is the only jurisdiction in New England that fully retains a vertically integrated utility structure.
[5] VEIC anticipates that this information and much additional pertinent information will be provided by the DPS Report filed in accordance with 30 VSA §8005b.

all forms of renewable energy. VEIC believes the purpose of an RPS is to incentivize those forms of renewable energy that policy makers believe will deliver real societal benefits over time. While market forces and economies of scale may be appropriate and powerful drivers of efficiency and lower cost for solar and wind resources for example, the same strategies applied to biomass resources may be counter-productive.

3. On page 12, the Board points out that a tiered approach to an RPS based on the level of overall design efficiency is relatively untested except for the recent change to the Massachusetts RPS and really only applies to biomass. The Board then goes on to recommend that the tiered approach should *not* be used and that projects should compete on price – thereby creating an indirect incentive to increase efficiency. This unilateral focus on price appears to assume that more efficient biomass plants are more cost competitive. ***The reality for biomass electric generation is that scale tends to dictate cost competiveness more than efficiency.*** An unintended consequence of this approach would be to set policies that encourage biomass plants to reduce costs by increasing in size. VEIC is concerned that Vermont and the region cannot afford to use our limited remaining forest growth resources at something approaching 25% efficiency. If a tiered approach is not adopted to provide a sliding scale of incentives for the projects at different levels of efficiency, then there should be a rock solid minimum efficiency standard new projects must meet. VEIC believes this should be over 50%.
4. ***Generally in biomass applications the higher the system efficiency, the smaller the volume of electrons produced relative to the amount of thermal energy produced.*** Vermont currently has a minimum efficiency standard for the SPEED standard offer for biomass under 2.2 megawatts and only one project has moved forward using this incentive. Critics say that a 50% minimum efficiency standard has curbed the development of any new projects. But the real reason so few projects have come forward is not because the minimum efficiency is too high, it is because the standard offer price for biomass combined heat and power (CHP) is too low. If a developer owns a 10MW thermal project with 1MW of electrical generation, it will probably cost more to produce each unit of electricity than the developer would get paid for it. Therefore, at this scale the thermal-only project's financial performance is far better than the CHP option. Small scale 2.2 MW biomass CHP plants cannot produce a kWh for less than a 35 MW plant like North Springfield or Beaverwood. Providing incentives to those technologies that will achieve maximum benefit and are perhaps at a competitive disadvantage in the open market, is the way to "level the playing field" for small-scale CHP.
   If small scale biomass CHP is a desired outcome, VEIC believes that there are two primary approaches: (1) increase the rate paid in the standard offer or (2) allow the thermal energy produced by a CHP plant, not just the small amount of electrical energy, to be eligible for incentive.
5. On page 13 there is discussion of the existing requirements of the regulatory CPG process that requires generating facilities to "achieve reasonable design system efficiency". An important point to consider is that there is on one hand, a clear difference between allowing plants to be permitted and built on their own merit and, on the other hand, providing them with strong incentives.
6. On page 13, the Report discusses the potential revisions to regulatory wood fuel procurement standards for biomass power plants and states that adopting such standards will "ensure that instate woody biomass generation facilities will employ….best practices

that will promote long-term forest health while not unnecessarily increasing the cost of RPS compliance." The problem with this statement is that such procurement standards only apply to in-state biomass generation plants if/when they source their fuel from a ***Vermont*** harvest job—it does not apply when a plant in Vermont sources wood from NY, MA, or NH, or vice versa, when wood harvested in Vermont goes to a power plant in NH. There is a huge need for regional consistency of procurement standards but also a need to allow standards to have effect when wood crosses state boundaries – without triggering interstate commerce issues.

Conclusions

1. VEIC agrees in principle with the conclusions drawn by the Board in its 2011 Report that are summarized and listed under bullets 3, 4, and 5 on page 3 of the current draft 2012 Report.
    a. *The Board recommended that the Legislature enact an RPS that supports existing renewable generation resources in order to prevent "backsliding";*
    b. *The Board recommended that the RPS have a goal of achieving 75% or (sic.) Vermont's electric energy needs through a combination of new and existing renewables over a 20-year period; and*
    c. *The Board noted in the 2011 report that there are limitations to what an RPS can accomplish efficiently. An RPS should not be a single, comprehensive policy intended to achieve all of the State's goals, but rather, should be used to accomplish what it can efficiently, and be complemented by other policies and programs.*
2. It may be that a transition to a more traditional RPS is an appropriate part of an overall strategy for Vermont to attain some of its goals for RE development. If this is to take place it should *not* be done in a way that penalizes existing or currently planned SPEED projects by changing the rules after the fact or mid-stream. In other words, any RPS should be forward-looking.
3. A more detailed quantification of the current benefits to ratepayers of SPEED projects and the effects of SPEED on the regional RPS market are essential to making informed decisions about how to proceed with a SPEED or RPS in Vermont. In this context a full understanding of what portion of SPEED projects are in-state as opposed to out-of-state will also be helpful information.
4. A full analysis of the current and potential level of RE development from other RE strategies in Vermont including net metering and standard offer will be important to reach an understanding of what role an RPS might and should play in Vermont. A clear and shared understanding of how RECs are accounted for and valued in each of those programs will also be an important part of the discussion.

5. VEIC agrees with the Board's recommendation[6] "…that energy efficiency programs not be specifically included in an RPS or SPEED program."
6. With regard to biomass energy, VEIC supports treatment of this resource in a way that supports efficient, clean, sustainable use and urges consideration of a tiered approach to biomass energy projects.
7. VEIC advocates a RE strategy that recognizes and supports inclusion of thermal renewable energy as a component of meeting Vermont's energy policy goals.

Transition Considerations

VEIC notes that there is no stable funding source currently identified for the Clean Energy Development Fund (CEDF). It also notes that aside from offering some incentives for biomass thermal systems through the CEDF, Vermont has no consistent policy to support the development of biomass thermal resources in Vermont, even though such projects may have significant economic and environmental benefits.[7]

One solution is to propose a "thermal renewable" component to an RPS. In the event that the Legislature does not act to adopt an RPS for Vermont, or seeks to create a transition strategy from the SPEED program to an RPS, it would be consistent with most of the eight goals enumerated under 8001(a) 1-8 to support the development of thermal renewable energy in Vermont.[8] It would also be consistent with the stated objectives of the Clean Energy Development Fund.

VEIC recommends that the Board consider proposing a "Transition" version of the SPEED program in which a significant portion of funds derived from the sale of new RECs would be applied to funding the CEDF program and a Thermal Renewable Development Program for residents, businesses and communities in Vermont.

If REC sale-derived funds were used for re-investment in new thermal RE strategies in Vermont, at least some of the arguments about the negative effects, including double counting benefits of SPEED, would be addressed.

Respectfully submitted,

/s/

Scudder Parker
Policy Director

[6] Report, middle of page 7.
[7] VEIC notes that Efficiency Vermont does offer some limited incentive to promote efficient automated biomass thermal installations.
[8] It does not appear to comply with objectives 3, 7 and 8 which speak more specifically to electric generation resources.

VERMONT PUBLIC POWER SUPPLY AUTHORITY

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December 20, 2012

Mrs. Susan M. Hudson, Clerk
Vermont Public Service Board
112 State St. Drawer 20
Montpelier, VT 05620-2701

re: Board Staff Act 170 Renewable Portfolio Standard Draft Report

Dear Mrs. Hudson:

On November 27th 2012, the Public Service Board ("Board") staff issued a draft report entitled *Further Analysis and Report on Renewable Energy Requirements* and requested written feedback from stakeholders. This letter represents the comments of the 12 municipal members[1] of Vermont Public Power Supply ("VPPSA").

VPPSA commends the Board staff's thorough analysis on the state's existing renewable energy goals and the programs and policies that were designed to meet those goals. Meeting multiple goals, such as developing viable markets for renewable energy and promoting clean air and water across the region while ensuring that the economic benefits flow to Vermont ratepayers, is clearly a challenge. When taken together, Vermont's current programs and initiatives are doing a great deal to bring new renewable energy generators online.

VPPSA does not support the creation of a Renewable Portfolio Standard ("RPS") in Vermont because it would raise the cost to utilities of serving their ratepayers. VPPSA recognizes that it is outside the scope of the Board's current report to analyze the potential costs of implementing an RPS in Vermont, and such costs are extremely difficult to quantify; however, adopting an RPS in which utilities were required to retire Renewable Energy Credits (RECs) would likely increase utilities' costs by reducing a current revenue stream and introduce a new set of expenses, VPPSA would like to see this acknowledged in the Board report, and considered in the Board's recommendation to the Legislature.

VPPSA believes that a mandatory RPS is not needed to promote renewable energy in Vermont. The SPEED program set voluntary goals, and utilities have positioned themselves to meet those goals. Adopting an RPS before 2017, when the SPEED goal may be accomplished, would create a moving target for utilities.

The SPEED Standard Offer program has provided long-term contracts with stable rates to small-scale renewable generators in the state, and required utilities' to purchase the energy and RECs from these units.

[1] Barton Village, Inc. Electric Department, Village of Enosburg Falls Water & Light Department, Town of Hardwick Electric Department, Village of Hyde Park, Inc. Electric Department, Village of Jacksonville Electric Company, Village of Johnson, Inc. Water & Light Department, Village of Ludlow Electric Light Department, Village of Lyndonville Electric Department, Village of Morrisville Water & Light Department; Northfield Electric Department, Village of Orleans, Inc. Electric Department, Swanton Village, Inc. Electric Department

This combination of voluntary initiatives and state requirements has provided structure that supports renewable generator development in Vermont.

Additionally, the 2012 legislative session brought substantial changes to the renewable energy landscape in Vermont through increased net metering and changes to the SPEED Standard Offer program. We have yet to see how those changes will play out in the coming years. The state will undoubtedly see additional renewable generation come online in the near-term, affecting the states' overall energy portfolio. VPPSA suggests that if an RPS were to be adopted by the Legislature, it should not be done in the coming legislative session. VPPSA would prefer to see the SPEED program run its course through 2017, and the Standard Offer and net metering changes take effect, before Vermont undertakes another significant policy change in the realm of renewable energy.

If an RPS is adopted, utilities should be given ample "lead-time" to allow them to plan and acquire resources at a reasonable cost. VPPSA looks at a 20-year time horizon, and sometimes beyond, when making decisions with its member systems about those systems' energy supply portfolios. Policy changes, or even discussion of potential changes at the state level, introduce greater uncertainty into these planning efforts.

If the Legislature does adopt an RPS, VPPSA believes it should be broad in nature, including resources differing in terms of size, vintage, and technology. VPPSA would not support technology categories. Having many categories or tiers would create the potential for one generator to dominate a category, essentially creating a monopoly; this is especially true in a small state such as Vermont. An RPS that is general in nature will provide utilities with the flexibility to meet customers' energy needs and satisfy the states' RPS at the most reasonable cost. In addition, the need to set a thoughtful Alternative Compliance Payment is apparent, regardless of the presence of categories or tiers.

We appreciate the opportunity to comment on the Board staff's draft report.

Sincerely,

Melissa Bailey
Analyst
Vermont Public Power Supply Authority

VERMONT PUBLIC POWER SUPPLY AUTHORITY

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December 20, 2012

Mrs. Susan M. Hudson, Clerk
Vermont Public Service Board
112 State St. Drawer 20
Montpelier, VT 05620-2701

re: Board Staff Act 170 Renewable Portfolio Standard Draft Report

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VPPSA commends the Board staff's thorough analysis on the state's existing renewable energy goals and the programs and policies that were designed to meet those goals. Meeting multiple goals, such as developing viable markets for renewable energy and promoting clean air and water across the region while ensuring that the economic benefits flow to Vermont ratepayers, is clearly a challenge. When taken together, Vermont's current programs and initiatives are doing a great deal to bring new renewable energy generators online.

VPPSA does not support the creation of a Renewable Portfolio Standard ("RPS") in Vermont because it would raise the cost to utilities of serving their ratepayers. VPPSA recognizes that it is outside the scope of the Board's current report to analyze the potential costs of implementing an RPS in Vermont, and such costs are extremely difficult to quantify; however, adopting an RPS in which utilities were required to retire Renewable Energy Credits (RECs) would likely increase utilities' costs by reducing a current revenue stream and introduce a new set of expenses, VPPSA would like to see this acknowledged in the Board report, and considered in the Board's recommendation to the Legislature.

VPPSA believes that a mandatory RPS is not needed to promote renewable energy in Vermont. The SPEED program set voluntary goals, and utilities have positioned themselves to meet those goals. Adopting an RPS before 2017, when the SPEED goal may be accomplished, would create a moving target for utilities.

The SPEED Standard Offer program has provided long-term contracts with stable rates to small-scale renewable generators in the state, and required utilities' to purchase the energy and RECs from these units.

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This combination of voluntary initiatives and state requirements has provided structure that supports renewable generator development in Vermont.

Additionally, the 2012 legislative session brought substantial changes to the renewable energy landscape in Vermont through increased net metering and changes to the SPEED Standard Offer program. We have yet to see how those changes will play out in the coming years. The state will undoubtedly see additional renewable generation come online in the near-term, affecting the states' overall energy portfolio. VPPSA suggests that if an RPS were to be adopted by the Legislature, it should not be done in the coming legislative session. VPPSA would prefer to see the SPEED program run its course through 2017, and the Standard Offer and net metering changes take effect, before Vermont undertakes another significant policy change in the realm of renewable energy.

If an RPS is adopted, utilities should be given ample "lead-time" to allow them to plan and acquire resources at a reasonable cost. VPPSA looks at a 20-year time horizon, and sometimes beyond, when making decisions with its member systems about those systems' energy supply portfolios. Policy changes, or even discussion of potential changes at the state level, introduce greater uncertainty into these planning efforts.

If the Legislature does adopt an RPS, VPPSA believes it should be broad in nature, including resources differing in terms of size, vintage, and technology. VPPSA would not support technology categories. Having many categories or tiers would create the potential for one generator to dominate a category, essentially creating a monopoly; this is especially true in a small state such as Vermont. An RPS that is general in nature will provide utilities with the flexibility to meet customers' energy needs and satisfy the states' RPS at the most reasonable cost. In addition, the need to set a thoughtful Alternative Compliance Payment is apparent, regardless of the presence of categories or tiers.

We appreciate the opportunity to comment on the Board staff's draft report.

Sincerely,

Melissa Bailey
Analyst
Vermont Public Power Supply Authority

Vermonters for a Clean Environment
789 Baker Brook Road Danby, Vermont 05739
vce@vce.org 802-446-2094

October 16, 2012

Ms. Susan Hudson, Clerk
Vermont Public Service Board
Via email

RE: Renewable Energy Report and Study – Sections 6 and 7 of Act 170

Dear Ms. Hudson,

I am writing to offer comments on the study mandated by Act 170 (S. 214) of the 2011-12 legislative session. Section 6 of the Act directed the Public Service Board to study renewable energy programs in the state in a variety of contexts. Section 7 outlines a similar study focused on the establishment of an RPS and related issues.

As Board staff is no doubt aware, the study in question first appeared in earlier drafts of related legislation, and was the subject of substantial discussion during consideration of the bill. These earlier drafts referred to "environmental assurance requirements" and a variety of specific inquiries about the impacts of renewable energy generation projects. While this language was not included in the final draft of the bill, members of the legislature and the Administration have made commitments to their colleages and to stakeholders that the topics discussed in earlier drafts of the study are relevant and can (and should) be investigated by the Board.

This letter details some of those issues, and makes requests for topics to be covered as the Board fulfills its mandates as outlined by the Act.

Subsection (b)(5) of Section 6 asks the Board to investigate renewable energy markets and supply requirements. We would suggest that under this subsection, the Board should investigate the long-term power supply of the ISO network, which is reported to be not only secure but in a state of surplus. Reports are that existing hydro facilities are not operating at full capacity. ISO senior staff have indicated that electricity from wind generation is essentially irrelevant in this context. These reports need to be confirmed and put into the accurate context of Vermont's place in the regional grid. The Board is uniquely positioned to secure the relevant information.

Subsection (b)(6) of Section 6 raises a number of key issues we feel are critical for the Board to investigate. The Act states that the Board shall consider, "the diversity, reliability, availability, dispatch flexibility, and full life cycle cost, including environmental benefits and greenhouse gas reductions, on a net present value basis of renewable energy resources available from suppliers." [Act 170, p. 46]

In fulfilling the requirements of this section, the Board should seek to understand the balance between impacts and benefits of renewable generation by using specific facts and data, and not

rely on modeling or assumptions. To that end, we feel as part of this study the Board must try to resolve the outstanding question of whether or not utility-scale wind developments actually reduce greenhouse gas (GHG) emissions in a system-wide context. Such an analysis has never been done in New England, to our knowledge. There have been modeling exercised performed for the region, and the question has been studied (with a range of answers provided) in other parts of the world. Again, in Vermont the Board is uniquely positioned to secure and analyze a comprehensive set of studies and data.

We still do not know if wind generation replaces other generation, and if so, how much and to what effect. For example, if wind generation comes online and causes a gas-fired generator to be dialed back (and then turned back up), that creates inefficiencies that result in more gas being burned, and thus less GHG emission "savings". VCE and other interested parties have little or no real data from wind projects, as developers keep production data confidential, and ISO has produced no evidence of GHG emission reductions because of the wind energy on the grid. Are wind projects displacing fossil fuel generation? We don't know. If so, are there some areas of New England that offer better fossil fuel generation displacement than others?

And if so, at what ratio? Some experts in the field have suggested that it's a "one to one" relationship – when one MW of wind is produced, one MW of natural gas generation is offset. Is that true? Are there specific fossil fuel plants that do better at reducing GHG emissions than others in response to wind energy? Has there been a reduction in coal or natural gas consumption at New England power plants because of wind energy?

Despite the fact that we have been asking these questions for several years, we have not seen any evidence that wind generation in New England results in useful electricity and reductions in GHG emissions. A modeling study done in 2005, but now we have wind in the grid. How's it working? Is it doing what they say? We hope the Board's study will provide answers to at least some of these questions.

There are also questions about the full carbon footprint of production and operation of utility-scale wind and solar projects. Construction operations (including diesel for machines), footing and road materials (steel, concrete, etc.), turbine/panel materials, transportation costs (shipping parts from China, etc.), oil in nacelles, loss of GHG absorption from terrain disturbance for generation and access and power lines, GHG emitters in transformers and other electrical components – all these combine to create a potentially large footprint for large wind and solar projects. The Board's study can help end speculation and allow the discussion in Vermont to be based on facts rather than models or hypotheses.

The current situation in Vermont's utility marketplace raises concerns about how renewable generation will lead to a decrease in overall GHG emissions. If electricity consumption were capped, and current sources of electricity were replaced with wind and solar, and those sources were in fact lower GHG emitters, then the emissions from the electrical sector would go down. An RPS could have a similar effect. However, Vermont does not (and likely will not) cap consumption. The current administration has indicated that it will not be pursuing an RPS in the future, relying instead on the standard offer program and other incentives to increase renewable generation, regardless of the status of the overall electricity marketplace (both supply and

demand side). So one could make the argument that building a new renewable generation source may (again assuming it is a lower GHG emitter) bend the curve down on GHG emissions, but will not actually decrease emissions.

We would also note that, given the current makeup of Vermont's overall energy consumption, the vast majority of our GHG emissions come not from the electricity sector but from heating and transportation. The only practical way to make meaningful reductions in GHG emissions in our state is to change consumption in those sectors. The Board's study can shed further light on the state's generation and consumption balance, and its impacts on GHG emissions.

There are other aspects of the environmental impacts from utility-scale wind developments that also need further exploration before the full ramifications of developing more wind generation in Vermont can be understood. State regulators have no comprehensive information about the total amount of explosives used in these projects, the composition of the explosives, and the specific impacts from the blasting on geology, habitat, and water resources. Without this information, we can't really know what is being done to the mountains – to quote the Act, what the "full life cycle cost, including environmental benefits" are – in exchange for the developments being undertaken and proposed.

In order to be complete, discussions about life-cycle costs must place a specific value on the water, the wildlife, and the human health and quality of life impacts created by these projects. The Board must actively engage this question and resolve how these impacts will be fully factored into its considerations.

Finally, on the subject of community participation in this study, we hope that the Board will err on the side of inclusion. Section 7 outlines a study of RPS and other related issues which overlap extensively with the points raised above. Subsection (c) states that the Board shall, "afford an opportunity to submit information and comment to affected and interested persons, as well as specifics about outreach to and inclusion of interested groups." [Act 170 p. 48] We hope the Board will utilize the same outreach for studies undertaken as part of Section 6 of the Act.

We look forward to hearing more about the Board's plans to follow through with these directives, and ask to be included on any lists being created of interested parties to be notified about the progress of the study and opportunities for comment.

Thank you for your work on these important matters.

Sincerely,

Annette Smith
Executive Director

CC: Billy Coster, ANR Senior Planner and Policy Analyst

Appendix B

Section 7 of Act 170

Statutory Mandate for the Further Analysis and Report

(ii) Will cause retail rate increases particular to one or more providers; or

(iii) Will impair the ability of one or more providers to meet the public's need for energy services in the manner set forth under subdivision 218c(a)(1) of this title (least-cost integrated planning).

(B) Based on this assessment, consideration of whether statutory changes should be made to grant providers additional flexibility in meeting requirements of section 8005a of this title.

(8) Any recommendations for statutory change related to sections 8005 and 8005a of this title.

* * * Renewable Energy; Further Study * * *

Sec. 7. RENEWABLE ENERGY; FURTHER STUDY; REPORT

(a) No later than January 15, 2013, the public service board, in consultation with the commissioner of public service, shall submit a further analysis and report to the general assembly on the following issues related to renewable energy:

(1) Building on its study and report submitted pursuant to Sec. 13a of No. 159 of the Acts of the 2009 Adj. Sess. (2010), further analysis of whether and how to establish a renewable portfolio standard in Vermont, including consideration of allocating such a standard among different categories of renewable energy technologies and of creating, for renewable energy plants, a

tiered system of tradeable renewable energy credits as defined under 30 V.S.A. § 8002 or other incentives that reward increasing levels of efficiency.

(2) Examination of whether and how, either as part of a renewable portfolio standard or through other means, to provide incentives for renewable energy generation that avoids, reduces, or defers transmission or distribution investments, provides baseload power, reduces the overall costs of meeting the public's need for electric energy, or has other beneficial impacts.

(b) The report shall state the board's recommendations and the reasons for those recommendations and shall include the mechanisms that would be required to implement those recommendations.

(c) Prior to completing the report, the board shall afford an opportunity to submit information and comment to affected and interested persons such as business organizations, consumer advocates, energy efficiency entities appointed under Title 30, energy and environmental advocates, relevant state agencies, and Vermont electric and gas utilities. The board may open an investigation in order to meet the requirements of this section and, if so, need not conduct that proceeding as a contested case under 3 V.S.A. chapter 25.